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CLINICAL MEDICINE AND SURGERY

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LEADING ARTICLES

	PAGE
Acute Strychnine Poisoning	461
Management of Leprosy	465
Malignant Goiter	467
Prevention of Heart Disease	469
Ponce de Leon's Fountain	471
Diet in Rectal Disease	473
Galvanometer as a Diagnostic Instrument	478
Editorials	457

COMPLETE TABLE OF CONTENTS ON ADVERTISING PAGE FOUR

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CLINICAL MEDICINE AND SURGERY

GEORGE B. LAKE, M.D.
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VOL. 41 — OCTOBER, 1934 — NO. 10

EDITORIAL

Cornelius Agrippa

EUROPEAN medicine, in the sixteenth and seventeenth centuries, was a weird melange of nascent and pseudo science, empiric practice, alchemy, thaumaturgy and what we might now call psychic research.

Among the men who dabbled and delved in what were then (and some of them are still) looked upon as the profound mysteries of nature, to such purpose that his name is still mentioned among the pioneers of science, was Henry Cornelius Agrippa (Heinrich von Nettesheim), who was born in 1486 and who laid some of the foundations of chemistry, upon which Paracelsus built, and exercised a profound influence upon the thought of his time. His monumental treatise on "Occult Philosophy" was published in 1533.

Agrippa was a man of parts and a versatile genius. He was a knight of the German Empire, a Doctor of both Laws, and held the office of secretary to Maximilian I and of councillor to Charles V. He practiced as a physician, lawyer, soldier, philosopher, historian, conjurer, astrologer and alchemist, at Cologne, Pavia, Metz, Freiburg, Brussels, Bonn, Lyons and Grenoble, and everywhere he went he commanded the respect and admiration of the learned and influential people. In fact, he was a man of real and great erudition, according to his time, and some of the accusations of superstition made against him, in the highly materialistic nineteenth and early twentieth centuries, are now beginning to seem not so soundly based as they formerly appeared.

It seems certain that Agrippa was familiar with the electrical properties of amber and of jet and with the magnetic power of the lodestone; also with the phenomena of hypnotism, autosuggestion and psychotherapy. If he made use of this knowledge among the ignorant people of the Renaissance (even though he believed that onions would demagnetize a lodestone), there is little wonder that he was looked upon as a necromancer.

Perhaps some of his unsavory notoriety is due to his unfortunate use, in his writings, of such words as "magic," upon which many, even now, look askance. That he did *not* mean by that word anything supernatural, but merely used it to indicate certain powers and properties which are, even to this day, not fully understood, is indicated by this quotation from one of his books:

"Natural magic is the active part of natural philosophy, which performs those things that are above human reason. Magicians, the most active inquirers into nature, oftentimes produce effects before the time ordained by Nature, which, therefore, the vulgar take for miracles, when they are, notwithstanding, only natural operations."

On such a basis, every discoverer of new (to us) laws and forces, could be classed as a magician by the ignorant and unthinking.

As we stand upon what we consider to be our high platform of scientific knowledge, it ill behooves us to sneer at the pioneers like Agrippa and Paracelsus, lest, perchance, the scientists of three centuries hence make equally derogatory remarks about the "super-

stitions" which dominated the dark and hazy thinking of the twentieth century.

The iconoclast is a useful and important member of society, but he never attains the highest state of usefulness because his mind is on a tangent.—MANLY P. HALL.

Dextrose Phleboclysis

IF there were any means of making an accurate record of the number of people who die every year as a more or less direct result of hypohydration, the figures would be shocking to most physicians, even without the list of those who die unnecessarily from hypochloridation and ketosis, who might have been saved if the medical attendants had taken the proper action promptly and adequately. It must be remembered that the more or less sudden loss of ten percent of the body fluids causes serious disorders, while the loss of twenty percent of these fluids means death.

The life-saving procedure, which is far too seldom used effectively in these cases, is phleboclysis with dextrose solution, with or without the addition of other drugs. The whole subject was well discussed in an article by Fantus, in *J.A.M.A.*, June 30, 1934, and the technic of the procedure was outlined in a clinical note in this Journal for September, 1934 (page 445). We hope to publish an article on this subject in the reasonably near future.

The solution most properly used contains five percent dextrose, in *freshly* distilled water. The quantity of dextrose may be increased and other drugs added, according to the indications, without any modification of the basic technic. Physiologic saline solution, except in cases of hypochloridation, is *not* the proper fluid for phleboclysis.

After surgical operations and in all cases of serious illness or where the patient is unconscious, an adequate intake of water by mouth is impossible or impracticable. In such cases, hypohydration is so common that it can almost considered as the rule, unless measures are taken to supply the deficiency through extraoral channels. Proctoclysis and hypodermoclysis can, of course, be used, especially if the medical attendant is not equipped with the apparatus and technic for intravenous medication, but they are less effective and more troublesome, to both the patient and his attendants, than is phleboclysis.

Many, if not most, of the cases of socalled shock, after operations and in critical illnesses, are the result of hypohydration. These could be prevented or relieved by timely and *sufficient* intravenous infusions of five-percent dextrose solution, which is also ideal in all conditions characterized by excessive thirst.

The deaths resulting from extensive but superficial burns are frequently the result of the loss of fluids and chlorides, by reason of the excessive exudation. The same conditions obtain in cases of obstinate vomiting, profuse diarrhea or extreme sweating. In such conditions, the five percent of dextrose for the phleboclysis should be dissolved in sterile, isotonic salt solution, in order to replace the deficient chlorides, as well as the lost fluid.

Acidosis (ketosis) is even more common in illness than is fever. The successful physician watches for it as regularly as he uses his clinical thermometer, and takes measures to relieve or (even better) to prevent it. Here two things are necessary: to increase the utilizable carbohydrate in the body, and to normalize the alkali reserve. Both of these can be accomplished by phleboclysis, using dextrose, possibly increased to a ten-percent solution, and adding enough sodium bicarbonate to keep the reaction of the urine amphoteric —*not* distinctly alkaline. If the dextrose is not readily utilized, carefully regulated doses of insulin should be given.

While these are the most commonly encountered indications for this procedure, one should not forget the occasional need for "washing the blood," in certain cases of poisonings and toxemias, and for osmotherapy in certain cases of increased intracranial pressure without hemorrhage. For this latter purpose, hypertonic (25 to 50 percent) solutions of dextrose should be employed.

Every surgical patient and all those suffering from any disease condition which is at all severe (especially if accompanied by fever), should be routinely, frequently and meticulously watched as to the condition of their water and acid-alkali balances. The former can be assumed to be reasonably normal if the twenty-four-hour output of urine is 1,000 cc. or more (it should be measured *every day*); the latter is determined by estimating the hydrogen ion concentration of the urine daily.

When the results of these daily studies are unsatisfactory (or, in cases where deficiencies in these respects are reasonably predictable, as a routine *prophylactic* measure), the intake of water, carbohydrate and alkali should be promptly and adequately augmented: by mouth, if this is practicable;

by subcutaneous or rectal infusions if the amounts required are relatively small, the critical period likely to be short or the physician is unequipped for or unskilled in intravenous technics; by phleboclysis in all the more severe cases and when the deficiency bids fair to be great or long continued.

Physicians who aspire to the higher degrees of professional and financial success, will, if they have not already done so, immediately familiarize themselves, in detail, with the technic of and indications for phleboclysis, and will then undertake it boldly in all suitable cases, thereby saving many lives which would otherwise be unnecessarily lost.

Civilization progresses at about the rate at which mankind abandons superstition for thinking.—Little Journal For Physician.

The Economic Factor in Neuroses

WE hear, from various sources, that the number of patients suffering from neuroses and neuropsychoses has increased decidedly during the past few years. This is not surprising, in view of the economic upheaval which has occurred during the same period, but the situation is not so simple as it may appear at first glance, and we must consider it rather carefully if we are to prepare ourselves to give real help to the people who have been thus affected.

The neurotic individual was not quite normal to start with—at least, not when he entered upon the real business of living at the age of puberty. There may have been some hereditary defect in his germ-plasm, which rendered him unduly sensitive, physically. In addition to this, there have certainly been some serious errors, of omission or commission or both, in his early training and environment. Neurotics are *made*, not born.

The result of this untoward combination of circumstances is that the "psychic variant" is more or less unable to face and deal with the harsh realities of life, and when he encounters them, makes an "escape," by means of drugs (including alcohol), a neurosis or psychoneurosis (often hysteria) or, in the more severe conditions, retires completely from the world of socalled normal people, into that purely subjective realm of complete escape from objective reality, which we call schizophrenia or dementia precox.

It must be remembered that this condition of "variance" is quantitative, as well as qualitative—that one variant will be able to endure more pressure than another without breaking. Many of these unfortunates were functioning fairly adequately, under the stresses of relatively simple living in rural districts or in less exacting industrial occupations; but when they were drafted or enlisted into the army, in 1917 and 1918, the added pressures (physical, emotional and mental) of military life and the battlefield were more than they could carry, and they came home suffering from "shell shock," which was merely an euphemism for various psychoneuroses and psychoses.

There are probably no more variants in the world than there were five years ago, but the stresses of economic insecurity, added to those they were already bearing without serious disturbances of their lives, have been sufficient to upset their delicate balance and precipitate them into a condition of obvious psychic abnormality. This gives us the key, if we have the knowledge, skill and patience to use it, which will enable us to open for them, once more, the door to reasonably satisfactory living, even though we are unable to give them the increased or assured income which would, at once, set them right.

There appears to be little that any one of us, as an individual, can do, directly, to ameliorate the economic situation (though it is our duty, as citizens, to familiarize ourselves with the political and social situation and to use our surprisingly large influence toward the achievement of more rational conditions), but if we have a sufficiently well grounded philosophy of life, we can do much to relieve these floundering ones from the non-economic, internal stresses, including remediable physical disorders, which constitute a part of the load they are carrying, and so permit them to return to the ranks of the presumably normal. This will require, on the part of most of us, a much more profound study of normal and pathologic psychology and of sociology, than we have hitherto made, as well as a painstaking search for relatively minor physical abnormalities, and their correction.

These problems are always strictly individual, and require, on the part of the physician, an immense fund of knowledge not generally taught in the medical schools, of sympathetic understanding and of patience, for their solution. But, granted such an equipment, *they can be solved*, in most cases.

In the care of the patient, a knowledge of psychology is of first importance.—Dr. James D. Heard.

All the darkness in the world cannot put out the light of one small candle.

An Open Mind

FOLLOWING the mob is dangerous. Those who were buying stocks in the summer and early autumn of 1929 know this — to their cost. In fact, when one sees the crowd rushing in one direction, it is generally safer to go the other way. Booms, even of the national Government, are liable to be unwholesome.

The important thing is to keep an open mind — not to be stampeded by crowd psychology nor overawed by "authority," but to think things out for oneself, disregarding all ballyhoo, propaganda and dogmatic statements.

Immense and revolutionary changes are taking place in our social structure, about which every sincere citizen should have an opinion of his own. Most, if not all, of the newspapers and popular lay magazines have axes to grind, one way or another. One needs to read those on both sides, and then seek the middle ground where the truth probably lies. One needs, also, to read two or three sound books along this line, written by men far enough out of the turmoil of selfish and corrupt politics to have a mental perspective.

These suggestions are valid at all times, in our professional sphere and in the larger life of the community and the nation. Just now and in the immediate future, the need for openmindedness and clarity of vision is, perhaps, more pressing than it has been for generations. We are moving in new directions, and a flood of propaganda, through all the agencies of publicity, is urging us to go further and faster. Now, if ever, is the time to look at the whole picture as it is, using our imaginations to visualize what it *might be*, if we continue in our present courses.

The elections this autumn may well be more crucial than any in which living men have participated, and those who go to the polls filled with nothing but "hot air" — no matter what its source — will be unworthy of the privilege *and the responsibility* which were conferred upon them when manhood sufferage was made universal.

We must keep our minds open, read, learn all we can, think and imagine — and then pray that the decisions we make may be the soundest and the best, not alone for ourselves and the classes to which we belong, but for America and *all of her people*.

Whatever we are going to do, we must do it in relationship to God and in relationship to our fellow men.—ARCHBISHOP TEMPLE.

Postgraduate Week

EVERY physician should spend at least a few days every year in receiving direct postgraduate instruction, in addition to the hours he spends in studying the current medical literature. The contacts with other men, in new surroundings, are refreshing and stimulating, as well as informative.

There is no way in which this impetus to professional advancement can be obtained, with so small a financial outlay, as by attendding the annual assemblies of the Interstate Postgraduate Medical Association. At these one at once enters the atmosphere of a great group of able teachers and earnest students. It is not a recreational nor political gathering (though association with men who think clearly and actively is always truly recreative), but an opportunity of obtaining an immense amount of new and valid information in a minimum of time.

This year's Assembly will be held in Philadelphia, November 5 to 9, inclusive, and every one of our readers who can possibly do so should attend it. It is not necessary to join any society in order to obtain these benefits. Every physician who is a member of his County Medical Society is eligible to register, upon payment of the small fee of five dollars, which is a small fraction of the cost of an equal amount of instruction obtained in any other way.

This Journal will have a booth in the exhibition hall at this meeting, and the Editor expects to be there and hopes to meet as many of our readers as possible, to discuss with them the ways in which we can be most helpful during the coming year.

LEADING ARTICLES

Acute Strychnine Poisoning

(Report of Three Cases)

By Chang T'Ung Ho, M.D., Nanking, China
National Health Administration

ACUTE strychnine poisoning in an adult is very rare. According to Hoppe,[1] in 467,500 admissions to the Bellevue Hospital in 11 years, only 6 cases were observed. C. S. Yang[2] reported only one case in 25,000 admissions to the Peiping Union Medical College Hospital, from 1916 to 1929. It is more common in children, as stated by Haggard and Greenberg.[3] The causes are mostly accidents, although a few cases on record are of suicidal purpose.

Three cases were seen by me, on Dec. 24, 1930, in one family, in Tsingtao, Shantung, China, where I was in private practice. The father of the family, a physician himself, prepared five powders, supposed to be quinine, for the members of his family who suffered from common colds. One powder was taken by each of the three, and each received about 0.4 Gm. of the drug, which was proved to be strychnine hydrochloride. The original bottle from which the medicine was taken was marked, "Quin. Hydrochloride," but the bottle was blue and definitely marked, "Not to be taken." It had been kept in the family medicine case for some ten years and, for some reason, it was wrongly labelled.

Report of Cases

Case 1:—S. T. W., male, aged 44, physician, had been in good health and active practice. On 24th Dec., 1930, two hours after breakfast, at about 9:30 A.M., he took 0.4 Gm. of strychnine hydrochloride (which was supposed to be quinine) for his "cold." Fifteen minutes after the ingestion of the medicine, he began to feel a sense of excitement, tightness of the tongue and stiffness of the limbs. He could still, however, manage to get to the hospital in a car.

The patient was seen at 9:55 A.M. — 25 minutes after the ingestion of medicine. While waiting in the clinic, he began to have twitchings of the facial muscles, jerkings of the limbs and stiffness of the tongue, which were sufficient symptoms for the diagnosis of acute strychnine poisoning. A few minutes later, typical attacks of convulsion ensued. The convulsions were of a generalized nature, with typical opisthotonos.

Gastric lavage was immediately started. It was found difficult to get the tube in, on account of lock-jaw and severe clonic convulsions. Chloroform was then given, followed by a successful lavage of the stomach with a potassium permanganate solution.

As chloroform was too dangerous to be relied upon as the only means of controlling convulsions, and the attacks were so severe that the patient's life was in immediate danger, all the measures that I could think of were started. Chloral hydrate mixture (15 cc.) was given per rectum. Subcutaneous injections of morphine, Eukodal, lobeline and digitalin were given, alternately, at 15-minute intervals. One dose of apomorphine, 0.006 Gm., was given hypodermically during lavage. Twenty (20) cc. of 25-percent magnesium sulphate solution were given, intramuscularly, at about 11:30 A.M. (It took 1½ hours to get the solution ready, for a sterile magnesium sulphate solution was not in stock.)

In spite of all the depressants, the patient still had attacks of convulsions every fifteen minutes or so. The attending physician and nurse stood beside the patient and did everything indicated to reduce convulsions and to prolong the patient's life.

A second injection of the same amount of magnesium sulphate was given at 4:00 P.M., followed by a few hours' quiescence. Attacks recurred at 6:00 P.M., but less severe, and the intervals between attacks gradually lengthened. The patient was in full consciousness between the attacks and screamed with pain.

The dangerous period was apparently over by 8:00 P.M., although sound and tactile stimulation were still capable of producing a mild attack. The last attack of convulsion occurred at 9:00 A.M. the next day, about 24 hours after the accident. The patient began to ask for water and food and was able to walk in a normal manner on the third day of illness. He complained of soreness of the limbs during recovery.

Case 2:—C. W., male, aged 19, son of the first patient, a student, took 0.4 Gm. of strychnine hydrochloride at 9:30 A.M., shortly after a light breakfast. He arrived at the clinic at 9:55 A.M.—25 minutes after the ingestion of the drug—and gave same complaints as Case 1, but the prodromal symptoms were noticed a little earlier. Typical convulsions appeared as soon as the patient was brought to the clinic.

Lavage with potassium permanganate was immediately done, under chloroform anesthesia, followed by a dose of apomorphine, 0.006 Gm., hypodermically, and 15 cc. of chloral hydrate mixture per rectum. Morphine and Eukodal, alternating with lobeline, were given subcutaneously in the same scheme as in Case 1. Twenty (20) cc. of 25-percent magnesium sulphate solution were given, intramuscularly in the gluteal region, at 11:30

Table 1. Case Data

Cases	Age	Sex	Body weight	Dose per kgm. of body wt.	No. of M.L.D.	Time of appearance of prodromal symptoms	Time of first convulsion	Time of last convulsion
1	yrs. 44	male	kgm. 80	mgm. 5	7.14	9:48 A.M.—18 minutes after taking medicine	9:58 A.M.—28 minutes after ingestion	9:00 A.M.—Dec. 25th (24 hours)
2	19	male	50	8	11.43	9:40 A.M.—10 minutes after ingestion	9:55 A.M.—25 minutes after ingestion	2:00 P.M.—Dec. 25th (29 hours)
3	23	female	55	7.3(+)	10.40(+)	9:45 A.M.—15 minutes after ingestion	9:56 A.M.—26 minutes after ingestion	10:00 P.M.—Dec. 25th (37 hours)

Each patient took 400 mgm. of strychnine hydrochloride at 9:30 A.M. on Dec. 24, and all arrived at the hospital at 9:55 A.M. Two (2) mgm. is the maximal therapeutic dose for an adult, according to "Useful Drugs"; 0.7 mgm. per kilo body weight was considered by Kempf[6] to be the minimum lethal dose in man; 90 mgm. was considered the fatal dose in adults by Davidson.[4] These patients took 4 or 5 times the fatal adult dose. Few patients on record have recovered after such a heavy dose.

A.M. This controlled the convulsions readily and the patient was in a stuporous state for 4 hours, free from attacks. After 3:30 P.M. attacks recurred, but they were mild and not severe enough to endanger the patient's life. Another injection of 20 cc. of 25-percent magnesium sulphate solution, and also a few more injections of morphine and lobeline seemed to improve the condition. The patient was free from convulsive attacks at 2:00 P.M. the next day—about 29 hours after the ingestion of the drug—and made an uneventful recovery on the third day.

Case 3:—A. M. W., female, aged 23, niece of the first patient, nurse by occupation, gave the same story as the other patients, but symptomatically her case was the severest of the three. She took only a very light breakfast at 7:30 A.M. Her uncle asked her to find out whether the medicine was really quinine. She licked it with the tip of her tongue from the original bottle and replied, "It tastes bitter; may be quinine." She then (at 9:30 A.M.) took 0.4 Gm. of the same medicine. So, actually, she took more than 0.4 Gm. About 15 minutes later, the patient felt dizzy, with blurring of vision and stiffness of the neck. Time of arrival at the clinic, 9:55 A.M.—25 minutes after taking the medicine.

When she was first seen in the clinic, she could talk in a trembling and unsteady manner, asking for help. She soon was seized by clonic convulsive attacks, during which consciousness was apparently lost and her face turned blue. Chloroform inhalation was given to control the convulsions while another doctor did gastric lavage with potassium permanganate solution. Apomorphine, 6 mgm., was given hypodermically, together with 15 cc. of chloral hydrate mixture per rectum. Morphine and Eukodal were pushed to the maximum, with the idea of reducing the convulsions, and 20 cc. of 25-percent magnesium sulphate solution were given, intramuscularly, at 11:30 A.M.

The patient was comatose and attacks occurred every 10 minutes or so, in spite of the heavy doses of morphine and Eukodal given, so another 20 cc. of 25-percent magnesium sulphate solution were given at 5:00 A.M., Dec. 25. Respiration became shallow and Cheyne-Stokes in character and finally stopped entirely. The patient's lips and face were blue; pulse rapid and feeble. Both pupils were contracted to pin-point size. There was much mucus in the throat.

Morphine poisoning was then thought of, so all the depressants were withheld, while lobeline, digitalin and camphorated oil were given instead. Artificial respiration was started. More than 20 minutes after this maneuver, the patient's mother, who was watching, said to me, "You have done your best. She is dying. Better leave her alone." Just then a few spontaneous breaths were observed. Isotonic saline solution (1,500 cc.), together with 50 cc. of 10-percent dextrose solution were given intravenously with the idea of preventing the impending cardiac failure. Nevertheless the general condition of the patient still remained bad. The respiration was shallow and of the Cheyne-Stokes type; the throat was full of mucus; skin cold and blue.

The patient was then moved upward and downward, in order to drain out some of the mucus. The throat was wiped with a piece of gauze and a catheter inserted for suction. To our satisfaction, respirations, as well as the general condition of patient, improved a good deal.

A few hours later, the patient began to have severe attacks of convulsion again, which occurred every half-hour or so and lasted for about 10 to 15 minutes each. Another 20 cc. of 25-percent magnesium sulphate solution were given intramuscularly, in the gluteal region. The attacks then became less severe and at longer intervals. The patient was free from attacks after 10:00 P.M. the next day—about 37 hours after the ingestion of the drug. She had to be catheterized on the morning of the second day, for the bladder was then found to be greatly distended. About 1,500 cc. of clear, deep-yellow-colored urine were obtained.

While the patient was in shock, a hot-water bag was put on the abdomen. Large vesicles, which were apparently due to the injudicious use of the hot-water bag, were found on the abdomen the next morning. The burn was of second degree, and the patient had to stay in hospital for 25 days before the wounds were completely healed.

TABLE 2. TREATMENT

Cases	Chloroform inhalation	Lavage with pot. permang.	Mist. chloral hydrate per rectum	Morphine, hypo.	Eukodal, hypo.	Apomorphine, hypo.	Lobeline, hypo.	25% mg. sulph., intramuscularly
	lb.		cc.	Gm.	Gm.	Gm.	Gm.	cc.
1	1	Done	15	0.04	0.06	0.006	0.027	40
2	1	Done	15	0.04	0.04	0.006	0.015	40
3	1½	Done	30	0.06	0.08	0.006	0.036	60

Gastric lavage with potassium permanganate solution was done in all cases. Cases 1 and 2 responded to treatmenf very well. Case 3 apparently had an overdose of depressants, which was successfully overcome by the administration of epinephrin, digitalin, camphorated oil, dextrose and isotonic saline solution. Veronal and luminal were given for muscular pain and insomnia when the critical condition was over.

A later examination of the three patients showed that there were no remote complications or sequels. The first patient was active in his profession, with undiminished efficiency. In each case the general health and intellect were unimpaired.

Comments

The treatment of these three cases of acute strychnine poisoning was necessarily very strenuous. Success was obtained by combined measures. Scientifically speaking, one really can not say what part of the treatment did most for the patients. The suffering of a patient with strychnine poisoning is too great and the outlook too grave to permit the experimental method of treatment in human beings; that is, to test one remedy at a time. The immediate aim of the physician, when meeting such cases, is to save the patient's life which, of course, is the sole expectation on the patient's part. I believe that the slightest hesitation and loss of time in dealing with such cases would give fatal results. Later one can take time to study scientifically the value of the measures employed clinically.

The danger of acute strychnine poisoning is immediate. Death mostly occurs during a convulsion, from fixation of the chest by spasms of the respiratory muscles, or during an interval, from respiratory paralysis. In other words, it is due either to exhaustion or to asphyxia. Treatment should be keen and speedy. Antidotes must have an immediate action in combatting convulsions. The "*never say die spirit*" is one of the requirements in treating a case of severe acute strychnine poisoning. The third patient would have died if efforts had been abandoned shortly after respiration stopped. The dangerous period is usually not very long, and the success of treatment largely depends upon close observation of the patient and doing promptly everything indicated. Once the patient is out of danger, there is neither sequel nor complication.

When morphine is used as an antidote for strychnine poisoning, it is very difficult to determine whether the patient is overdosed or not, for in spite of blueness of the face and shallow respiration, the patient may have convulsive attacks which will, of course, lead one to think that the action of strychnine is still predominant and that more depressants should be given. Continuous use of morphine, without a careful watch for morphine poisoning, would certainly mean the loss of the patient's life. The third patient would not have recovered if morphine poisoning had not been thought of and immediate action to combat it had not been taken.

The first patient recovered earliest, for he was older and heavier, and therefore received less strychnine, as calculated per kilo of body weight. The severity of Case 3 may be explained by a comparatively larger dose—an unknown additional amount from the lick—and an empty stomach at time of ingestion of the medicine. Age and sex differences may also explain some of the variations in behavior. From calculation, as shown in Table 1, the second patient received the largest dose per kilo of body weight; but, clinically, his case was the mildest of the three, which I am at a loss to explain.

Apomorphine was given to all three patients at the time when gastric lavage was done, to secure emesis. Each patient received 0.006 Gm. Its possible action as a depressant is very hard to evaluate, as other, stronger depressants (morphine and magnesium sulphate) were administered at the same time.

Eukodal, chemically known as hydroxycodeinon hydrochloride, is a substitute for morphine. It is claimed to be less toxic, but its action sets in more rapidly. The unpleasant by-effects, as compared with those of morphine, are much less. On the basis of its use in these three cases, one cannot say whether these claims are justified or not.

Lobeline is reputed to be a good respiratory stimulant. Its conjoint use with morphine and Eukodal in these cases seems to have

protected the patients from respiratory failure to some extent, as the doses of morphine and Eukodal were rather large.

Stomach contents recovered by gastric lavage were tested for strychnine in all three cases, using the sulphuric acid-bichromate method, which consists of placing a fair-sized potassium bichromate crystal in 5 cc. concentrated sulphuric acid and adding 0.5 cc. of the fluid to be tested. The appearance of a green color indicates the presence of strychnine. It was found to be positive in all cases. The medicine in the original bottle was analyzed chemically and proved to be strychnine hydrochloride in its pure, crystallized state.

Treatment

The treatment given in textbooks is far from satisfactory. Cases so treated show a mortality of 35 percent.[4] More recently, intravenous saline and dextrose solutions have been used, with good results in animals.[5] The amount of chloroform, ether and chloral hydrate required in controlling convulsions is apt to be sufficient to depress or stop respiration. Morphine, used in sufficient quantity, is likely to prove fatal, if morphine poisoning is not carefully watched for. The use of apomorphine was suggested by S. Martin.[3] Kempf stated that apomorphine, while useful in human strychnine poisoning, may not be adequate.[6]

Magnesium sulphate and sodium amytal are two relatively new antidotes for strychnine poisoning. The former was first advocated by Peck and Meltzer, in 1916, to treat tetanus,[7] and was then found to be also effective in strychnine poisoning. Sodium amytal had been used for strychnine poisoning only in past one or two years. Kempf[6] reported, in 1933, 11 cases of strychnine poisoning treated with intravenous injections of sodium amytal, with 100 percent recovery. Stalberg and Davidson[4] and Wheelock[8] also reported cases treated successfully with sodium amytal.

At the time these patients were seen, none of the articles describing the use of sodium amytal was available and this drug was not used.

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POISONS

It is just plain common sense that if you inject a poison into a physical body that body is weakened. If no efforts are made to counteract that poison and the patient is continually dosed with it, death is certain. It is, likewise, plain common sense that if you inject a poison into the body politic that body is weakened. If no efforts are made to counteract that poison and the patient is continually dosed with it, the body politic passes away.

The false alien theory, now rather commonly advanced in the United States, that the visible evidence of thrift—that is, property in some form—should bear all taxes, is poison to the body politic.—COMMITTEE ON AMERICAN EDUCATION.

VOCABULARIES

It was found that in 500 typical telephone conversations about 80,000 words were used. Of these, only 2,200, or less than 3 percent, were different words. Fifty words account for 60 percent of the total words in these conversations, and 700 words account for 95 percent. If a person's vocabulary were limited to 700 words, he could transact business over the telephone and with a 95-percent efficiency. A foreigner knowing only 50 words of English would be 60 percent efficient, if he could use these words correctly. —Little Journ. for Pediatrists, *Nov.*, 1933.

The Management of Leprosy

By R. M. Wilson, M.D., Soonchun (Junten), Korea

WHILE there are still many doubting Thomases in the treatment of leprosy, we are seeing very encouraging results and I believe firmly that 80 percent of the cases seen early can be gotten under control and the condition arrested. One great trouble in the past, and in some institutions today, is that the very advanced cases do not improve and conclusions are made from these cases.

As to *diagnosis*, it is unfortunate that we do not have more positive diagnostic methods in the early stages of the disease. There are those borderline cases, which prove a real problem to diagnose. I have had three cases recently, showing puffiness of the face and loss of eyebrows and, while closely resembling leprosy, I could not give a positive decision because I could find no areas of anesthesia. All three cases I put on antisyphilitic treatment, asking them to return in a few months for further study. It would be a greater mistake to take such doubtful cases into the Colony than to delay diagnosis a few months.

Out here occasionally a person will commit suicide, thinking he is a leper; others imagine they have the disease when they are only neurotics; others are diagnosed as lepers, enter an institution and later prove not to have it. Some fear it like death; others are glad to have it in order to get into a charity institution. Two test tubes filled, respectively with hot and cold water are useful in such cases, after the patient has been blindfolded. Some will be sensitive to the prick of a pin, but not to the heat test.

Treatment. We have found nothing that has given the benefit and satisfaction obtained from hydnocarpus or chaulmoogra oil, injected twice weekly, from 4 to 8 cc.

The chaulmoogric esters have given so much pain that our cases refuse to take them. The stock of esters left over is proving very good in the local treatment of scabies and certain itching eczemas. We are now adding 2 percent of these esters to all scabies and eczema ointments.

It seems very strange that, in Manila and other places, the esters can be used with no special pain, yet with us the pain is so great that our cases refuse to take them.

In most of our cases we expect a very distinct improvement after three months' treatment. In another three months there is still more marked improvement. Of course, in treatment there are many other important things, such as diet, exercise, baths and sanitation, and complications that must be taken into consideration. Cases complicated with syphilis constitute a big problem, and some of these will not respond to treatment. In many of the neural cases, no special change or improvement can be expected, for these cases are often practically normal, except for some small anesthesia areas, and these may continue unchanged for many years' time, neither better or worse.

One big problem is, what to do with the cured leper? We are doing vasectomy upon a number of cases and allowing them to marry and live within the colony, both parties being arrested cases. These support themselves on the land, except for an allowance of one yen a month per person. This couple also adopts a leper child, which will make the home idea more perfect.

Fig. 1: Showing the leonine facies often seen in the tubercular form of leprosy. A cut into the skin almost anywhere will show many lepra bacilli.

The youngest patient I have seen was 9 months old; but it is quite unusual to see them under the age of 4 years. It is generally accepted that leprosy is a disease of childhood and youth, and even though it may not make its appearance until later in life, the inoculation probably took place in the early years. It is probably the most mildly infective disease we have and inoculation is by *long* and *close* contact.

At the Manila Leper Conference, the disease was divided into two classes: "open" cases, which may spread the disease, and "closed" cases in which the bacillus is not found and with which it is safe to come in contact.

Rogers claims that 60 percent of infections come from houses where lepers have lived. Humidity has much to do with the incidence of leprosy. It is a very striking fact that most of the 20,000 lepers in Korea are in the southern half of the country and only a very few north of Seoul.

In our institution all get the *spirit of a cure* and the lepers are most energetic and hopeful. Every doctor, nurse and patient should have this spirit and hope of cure. A leper colony or hospital is no place for the blues. If the doctor does not expect any improvement, what can be expected of the patient? Doctors spend too much time debating the word "cure." If 70 to 80 percent of the cases seen early make marked improvement and disease is arrested, this is the thing we want. Call it "arrested" or anything you please, but let us have a little more faith in improvement. My lepers are just as keen and interested in their improvement as I am. We keep posted a list of the essentials in treatment. Leprosy is chiefly a disease of the nerves and skin, and motion, sweating, work, baths and activity of the skin are a part of the program of elimination.

In our institution there is not a non-leprous person coming in contact with lepers, except the two doctors, and all are taught not to touch a door knob or anything used by lepers. All injections, dressings and nursing are done by the lepers themselves, and here is a splendid way to provide work for the "closed" cases. *Nursing should be done by cured lepers.* I think it was reported that none of the workers among the Japanese had been infected so far; yet there is a slight danger that could be avoided. I believe that every institution should have a nurse's training school and that a few good nurses should be given the task of training the inmates to do this work. In one institution there were healthy cooks, and I noticed that these received and handled the dishes coming back from the wards. It is a very good policy to keep the number of healthy workers about leper institutions down to the very least minimum. Ninety-five percent of the work about such places can be done by "closed" cases. Laundry, cooking and nursing should be done by cured lepers. I noticed at Carville, U. S. A., that many of the lepers were given positions about the place.

Treatment

While there seem to be many doubters as to the good results in the treatment of leprosy, we are seeing most encouraging results. I am convinced that in 80 percent of the cases seen early the disease can be checked and held in control, and we cannot say quite so much about tuberculosis.

The drug giving us the most satisfaction is plain chaulmoogra oil, injected twice weekly. We have tried almost everything

Fig. 2: Showing the facial paralysis which is so common, with the resulting mask-like expression, and the stump of a hand, from which the fingers have been lost.

that comes along, but have found nothing quite so good. The esters have proved too painful in our institution, and the lepers simply refuse their use.

All complications should receive prompt and early attention. Among these are syphilis, intestinal parasites, malaria, tuberculosis, etc. One cannot expect satisfactory results with these complications untreated.

I consider exercise almost as valuable as the oil. We encourage exercise through the various lines of industrial work, which are of great importance from the economic standpoint.

Among the occupations followed by our lepers are: Vegetable gardening, the care of livestock, nursing, tinsmithing, basket making, teaching, carpentry, masonry, the making of artificial legs, basketry and a number of others.

Patients not able to take the injections are allowed chaulmoogra oil powder by mouth. Those with tuberculosis, nephritis, leprosy reaction or any acute attack are taken off the oil injections. Only a few cases are allowed to take the drugs by mouth, as the injections are by far more effective.

Biederwolf Leper Colony

Malignant Goiter

By Emilian O. Houda, M.D. Tacoma, Wash.

THERE is probably no problem in the field of medicine upon which so much time and money are being spent as are now employed in research to discover the cause of cancer.

A score of years ago, Bainbridge prefaced the most comprehensive American summary of the facts then known regarding cancer with the statement, "The mystery which today obscures the essential cause of cancer may be cleared away tomorrow; the views held at present may, of necessity, be abandoned in near future."[1] I purpose to make some suggestions along this line which may prove helpful.

Until rather recently, the cause of goiter was almost as obscure as that of cancer; so much that Hertzler opened a monograph text with the sentence, "Like other chronic diseases, we do not know the cause of goiter."[2] And this in spite of the fact that the cause of that disease was known and had been published before his book went to press.[3]

We may reasonably claim to know at least two things about cancer: (1) The work of Maude Slye, with the inbreeding of cancerous and cancer-free strains of mice, is convincing evidence that a *tendency* to malignant disease is heritable, as a Mendelian recessive character; and (2) the present consensus is that cancer never develops in previously entirely healthy tissue.[4]

In addition to these apparently established facts, we know many of the secondary or exciting causes which may result in malignant growths, but the primary or underlying cause has heretofore eluded us.

Up to now, the diseases regarding whose specific etiology we feel certain are, with the exception of the recognized deficiency diseases, such as scurvy, rickets and beri-beri, practically all the results of the invasion of the body by pathogenic microorganisms. And while such discoveries, during the past decade or two, as that of the pleomorphism of the tubercle bacillus, have shaken the foundations of the older, static bacteriology, that study still remains as nearly an exact science as any upon which the foundations of scientific medicine rest.

Many research workers have endeavored to demonstrate a specific microorganism as the cause of cancer, but so far their claims have been unable to stand against more careful and penetrating studies, made by other observers. In the light of present knowledge, we must dismiss the probability of the existence of a specific "cancer germ."

For more than ten years I have been engaged in the study of goiter, in that region of the United States where this disease is most prevalent, and in the demonstration of its cause,[5] and these studies have produced a deep conviction in my mind, that cancer of the thyroid gland is not a peculiar and specific disease, apart from all that is known about goiter, but rather the terminal stage, of a long series of reactions in the diseased gland, resulting from bacterial factors present within its substance, and not the result of any dietary excesses or deficiencies. The story of thyroid cancer is merely the last chapter of the story of goiter.

If, then, goiter be the result of the activity of a specific microorganism which satisfies Koch's postulates, as has been reported on a number of occasions (see CLIN. MED. & SURG., Mar. — p. 176, and Sept. — p. 651, 1932); and if thyroid cancer is merely the terminal stage of goiter, it seems reasonable to assume that further research in the little-explored field of tumor bacteriology may reveal, not a specific "cancer germ," but a series of organisms, specific for precancerous changes in various organs and tissues, as the organism I have isolated is specific for such changes in the thyroid gland.

Malignant diseases are late developments, and invariably make their appearance in a circumscribed area, for reasons peculiar to the host as an individual[6] and to the affected tissues themselves. Chronically diseased areas, if not malignant on surgical removal, are frequently pronounced "precancerous" by the pathologist; and if the cause of the original disease can be removed, the measures which prevent cancer amply justify the efforts of the American Society for the Study and Control of Cancer and other similar organizations.

In spite of theories to the contrary, the first tumor has yet to be definitely proved to be the result of the remote effects of organs other than the one in which it makes its appearance, except, of course, the metastases from fully developed cancerous areas. The worst types of malignant neoplasms begin in a circumscribed area, and for reasons present in that area itself.

Microorganic life can no more be dissociated from the consideration of disease in general (goiter and cancer not excluded) than it can from its necessary presence in fertile soil. Relatively few of these organisms are, however, pathogenic to man; but these few, though they may remain in the body for long periods without producing symptoms, may at any time develop properties which will cause them to dominate the picture of various diseases called by definite names. J. E. R. McDonagh has thrown much light upon these changes,[7] if we could but see it.

The student of cancer must concede that malignant neoplasms, even though they be but terminal phases of chronically diseased flesh, are the result of profound biologic changes in living tissues, whereby they are so transformed as to be radically different from their normal state and become incapable of transplantation to other normal individuals of the same species, though they will grow freely in almost any part of the body of the affected individual.

This last statement contradicts the popular impression that cancerous tissues can be readily transplanted. The fact is that such transfers of malignant tumors are so rare as almost to be said to prove the contrary rule; and whatever meager information may occasionally be gained from successful transplants throws no light on the problem of why the structures became cancerous in the first place.

The fact that it is extremely difficult, or impossible, to transplant cancerous tissues into a normal individual and have them grow, and that there is no record of anyone having "caught" cancer from a patient suffering with that disease, would seem to eliminate entirely the possibility that there can be a specific "cancer germ" which can live outside the body.

Since Virchow's cellular interpretations of disease conditions in general, the "germ" of cancer has been generally accepted as being a cell of the body itself, which has become "sexually insane" or obsessed with the urge to reproduction. But something must have occurred to transform normal and harmless body cells into destructive parasites.

The early stages of cancer are symptomless, as such (aside from the symptoms of the "precancerous" inflammatory condition); and in its readily recognizable late stages there are many signs whose counterparts may be found in other conditions. Aside from the known clinical course and the revelations of the microscope, there is no known test which can prove the existence of a cancerous state.

Most of the chronic maladies from which men suffer can be traced, more or less directly, to microbic infections, which are frequently related to specific tissues. When malignant diseases in general are viewed as terminal phases of a wide variety of types of chronic infections (as I am firmly convinced is the case in cancer of the thyroid), the researchers will undertake, not one attempt to discover a specific "cancer germ," but a *series* of attempts to isolate a variety of micro-organisms, such as that which has repeatedly been demonstrated in malignant and non-malignant goiter, which are the specific causes of the equally varied "precancerous" inflammatory reactions in different organs and tissues.

Summary

1.—Most diseases of positively known etiology are due to the invasion of the body by specific micro-organisms.

2.—The fact that it is excessively difficult or impossible to transmit cancer, directly or indirectly, from a diseased individual to a normal one, practically rules out the possibility that there is a specific "cancer germ."

3.—It is generally recognized that cancer of the thyroid practically always develops in a previously benign goiter, of one type or another, and that it is extremely difficult to detect, even with the microscope, the stages by which this transformation takes place.

4.—Therefore, if we could prevent or cure goiter, we would have solved the problem of the control of cancer of the thyroid (malignant goiter).

5.—I have isolated a microorganism which satisfies Koch's postulates as the specific cause of goiter; and many cases of goiter, in its "precancerous" stages, have been cured by vaccines prepared from this organism.

6.—On this basis, it seems reasonable to suppose that sufficiently diligent research might be able to discover other specific micro-organisms as the causes of inflammatory processes in other organs and tissues, of such a nature that they prepare the soil for the development of cancer of those tissues.

7.—The discovery of such organisms and their elimination, by their employment, in the form of specific vaccines, when "precancerous" inflammatory changes have already taken place, might furnish the solution of the increasingly pressing "cancer problem," even though it would not offer a specific treatment for cancer in general, but a matter of individualized remedial measures, not applicable to the late or "cancerous" stages of any of these disease processes.

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1111 Fidelity Bldg.

The Prevention of Heart Disease

By R. V. Powell, M.D., St. Louis, Mo.

THE etiologic classification of heart disease has been one of the distinct contributions of this country during the past generation. It has helped to clarify our knowledge of the various types of heart disease and to define the problem of its prevention. We cannot intelligently prevent a disease until we know its cause. We may prevent heart disease by our knowledge and advice and, if carditis is detected early, we frequently can prevent these patients from becoming cardiac cripples.

If we group the recognized etiologic types of heart disease, most of them will fall into two classes: infective and degenerative. It is not possible to abolish infective heart disease until we find a way to abolish rheumatic fever, tonsillitis and scarlet fever, which are all probably streptococcal infections. The involutional changes are inevitable.

Infective Carditis

In the prevention of infective heart disease we must direct our efforts toward the rheumatic fever group. Early diagnosis and complete rest as long as there is any evidence of acute activity, offer the best promise of favorable results. Rheumatic fever is most common from the fifth to the fifteenth year, and at this age about 80 percent of heart disease is due to rheumatic fever. Statistics[1] supplied by the American Heart Association show that approximately seven out of every thousand school children have some heart defect which impairs their general health, and between the ages of ten and fourteen years heart disease is the greatest cause of death.

When one is once infected, the rheumatic process is probably persistent. It may be dormant, but is rarely dead. Coombs[2] believes that at least one-third of rheumatic children are infected through the tonsils, following acute tonsillitis, and also believes that the other two-thirds are probably infected by repeated minimal tonsil infections. The premonitory symptoms[3] may last for weeks or months before the onset of severe symptoms. These are loss of appetite and weight, fatigue, pallor, nervousness, evening fever, increased pulse rate, vague joint pains, which are increased on exercise and relieved by rest, and finally cardiac symptoms.

The next consideration in the prevention of the rheumatic type of heart disease is the signs in a heart which make one suspect rheumatic infection. The increased pulse rate is not diagnostic unless accompanied by dilatation of the left ventricle. This probably means myocardial disease, and therefore rouses suspicions of rheumatic infection. If, with the enlargement of the left ventricle, there is an apical systolic murmur, not of cardio-respiratory type, the diagnosis of rheumatism is almost certain. A re-duplication of the second sound at the apex or a mid-diastolic murmur is also good evidence of rheumatic infection. When these signs are present carditis is probably already established; but even so, if the patient is cooperative, with prolonged rest there is a possibility of cure. It now means rest for weeks or perhaps months. As long as there is a fraction of a degree of fever in the evenings, acceleration of pulse, or weight below normal, rest must be maintained. The value of the routine use of salicylates in those who have once had a rheumatic infection, to prevent a recurrence, has not been proved.

Scarlet fever is probably another streptococcal infection and frequently seems an important etiologic factor in the history of cardiac patients. It rarely causes valvular disease. Immunization in this disease has not reached a stage, as yet, to be of importance in prevention of this type of heart disease.

Diphtheria has a profound toxic effect on the myocardium and vasomotor system. The myocardial changes are frequently accompanied by heart block and may lead to a rapid fatal termination, unless sufficient antitoxin is used early. In a majority of cases, if the patient survives the acute attack, there is complete recovery. The prevention of diphtheritic heart disease is by the early use of adequate doses of antitoxin.

Acute bacterial endocarditis is usually a secondary or terminal infection. The bacteria most frequently responsible for this disease are the *Streptococcus hemolyticus*, the pneumococcus, the *Staphylococcus aureus* or the gonococcus. There is no specific treatment. An attempt to prevent the diseases with which these bacteria are associated will lessen the incidence of this disease.

Subacute bacterial endocarditis is more common than the acute type of malignant endocarditis. It is usually caused by the *Streptococcus viridans* and attacks hearts already damaged by rheumatic infection or congenital defects. There is no specific treatment.

Hypertension is a common cause of cardiac enlargement and frequently an important etiologic factor in angina pectoris, coronary disease and coronary thrombosis. The term cardiorenal disease is frequently used to describe the condition of hypertension heart; however, little arteriosclerosis is found in these kidneys at post mortem examination and renal insufficiency, except that consequent upon heart failure, is not very common.

Hypertension is a disease of middle life,

and frequently runs in families, especially where there is overeating and underexercise, followed by obesity. Fahr[4] states that 50 percent of the cases of organic heart disease, in patients over 45 years of age, appearing at the University of Minnesota Dispensary, have systolic blood pressures over 180 and diastolic of 100 or over, the majority being over 200 systolic and 120 diastolic. He states that, in one year, out of approximately 140,000 cardiac deaths in persons 50 years of age and over, 70,000 were due to hyperpiesis wholly or in part.

The family history often suggests the line of preventive treatment. They should begin early to regulate their diet, exercise, work, play and habits in general. They should avoid overweight.

The prevention of cardio-vascular syphilis is inseparable from the problem of prevention of syphilis. There are usually ten to fifteen years or more between the primary infection and the clinical appearance of cardiac infection. The diagnosis is usually made early and proper treatment advised, but not realizing the importance of prolonged treatment many do not return to their physician. This frequently leads to aortic disease, aneurysm and coronary disease. The reports of White and Romberg,[5] who have found that they see only about one-half as much cardiac syphilis as they did twenty years ago is, however, encouraging from the side of prevention.

Non-Infective Conditions

Hyperthyroid heart disease is a result of excessive or disturbed secretion of the thyroid gland. The exact way in which the heart is damaged in this disease is not definitely known; however, it is probably through the increased general body metabolism, increasing the demand on the heart and circulation. Rest, drugs and x-ray treatments are almost invariably inadequate in the treatment of hyperthyroidism. Early diagnosis and good surgery is the prevention of the heart disorders of hyperthyroidism.

Arteriosclerotic heart disease is a process of involution. It has been termed senile heart, but since symptoms frequently occur before the onset of old age (often in the fourth decade), it is probably better to regard it as a type of heart disease.

There are probably many factors in the production of arteriosclerosis. In recent years evidence has accumulated that pneumonia, typhoid fever, the exanthemata and many other infectious diseases are followed by some degree of arteriosclerotic changes. Excessive mental strain would appear to be another factor. Many of these individuals develop angina pectoris. It is not the coronary sclerosis alone, but a sensitive nervous system is also important in the production of angina pectoris. With the proper regulation of habits to avoid worry, hurry, overexertion and overeating, life, in a patient having angina pectoris, may sometimes be prolonged for a number of years.

A very serious later stage in the course of coronary disease is thrombosis of the sclerosed vessels. The prognosis is always grave and it is often very quickly fatal. They frequently, however, survive the immediate attack and may live for several years. The same common sense manner of living that has been recommended for angina pectoris is applicable here.

Heart disease secondary to chronic lung disease is not common. This type has been called the emphysema heart. The obstruction to the pulmonary circulation resulting from chronic lung disease may exert a strain on the right ventricle, just as the systemic high blood pressure exerts a strain on the left ventricle. The prevention of this type of heart disease is the prevention of chronic lung or pleural diseases. Tuberculosis of the heart is rare, though it does, at times, cause diseases of the pericardium.

Nothing can be done in way of prevention of congenital heart disease.

Neuro-circulatory asthenia is really not a heart disease, but a group of symptoms referable chiefly to the heart. It is, however, of importance to recognize the syndrome. The best prevention here is to treat the patient and not the heart.

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512 Beaumont Bldg.

THE WRECKING CREW

We are ruled by organized minorities. They influence legislation, local, state and federal. They create popular clamor (not sound public opinion). They hold sway in the schools and colleges. They are engaged in a well directed movement to wreck the nation . . . . . to destroy constitutional government.—COMMITTEE ON AMERICAN EDUCATION.

Ponce de Leon's Fountain

By Scott R. Edwards, M.D., New York City

IN the history of the early inhabitants of the Caribbean islands, there are two outstanding points: First, how very little is known about them; second, how completely and early they vanished. Those encountered about the Florida straits by the first Spanish explorers were exteremely virile and warlike; but there was no living trace of them as early as 1820. Even at this early date those writers dealing with the historical records of this region called attention to this fact. These early inhabitants left no mixed population.

Had Ponce de Leon been able to observe the native life on the island of Bimini for an extended period, he might have found that for which he sought—not literally a "Fountain of Youth," but the basis for the story of the delayed senility enjoyed by the natives, as related to him by enslaved Indians captured on the Florida side of the straits. Such a source of energy has been proved to exist in this region, and there is unmistakable evidence of its having been recognized and made use of by the natives, even at that early date.

The long life, and virility to an advanced age, enjoyed by the natives living on the islands removed from the mainland, were probably responsible for the legend of the Fountain of Youth. Even today a contrast between the inhabitants of the mainland and the natives of these islands still is evident, and undoubtedly it existed to a greater degree when Ponce de Leon was making his intensive search. At that time the insect-borne diseases and other protozoan enemies of man levied a toll among the natives of the mainland, which was unknown to the natives of the Lesser Antilles and the Bahamas.

Rumors of gold led Ponce de Leon to Porto Rico. In 1508 he conquered this island and was made governor of it. This appointment was made without the sanction of Columbus, the Governor of Espanola. Dissatisfied with conditions which arose as a result, Ponce de Leon began his search for the Fountain of Youth. There would seem to be significance in the fact that he finally became convinced, after his constant inquiries over a period of three or four years, that the island of Bimini was the source of that which he sought. While there is no Fountain of Youth on this island, it is centrally located with regard to the thickest distribution of the marine gastropod, technically designated as *Strombus gigas,* and commonly known as **conch.**

Ponce de Leon obtained a patent from King Charles, authorizing him to seek and govern the island of Bimini. Rumor placed this island to the northwest of Porto Rico. With a fleet of three vessels he cruised north along the Florida coast. Reaching the St. John River, he turned back to the Florida Keys. During this time his main quest was for the island of Bimini. While anchored off the southern end of the Keys, his fleet was attacked by Indians in canoes. And although the explorers escaped, to return to Porto Rico, there had been no sight of the fabled spring.

Some idea of Ponce de Leon's conviction that such a source of rejuvenation did exist, is obvious from his subsequent behavior. It may have been that his personal observation of the difference seen in the types of aborigines strengthened his belief. There is specific historical mention of the terrible devastations wrought upon the Spanish colonies by the Caribs of the Lesser Antilles. These tribes were unconquerable, and much more warlike than the Indians encountered at various points of the Florida mainland.

Ponce de Leon's enthusiasm was such that, following his first failure in the search, he made a second effort. He returned to Spain and went personally before the king, to present the merits of the search for Bimini. His plea was successful, but subsequent events prevented his ever truly reaching his goal. Before he could set forth again, renewed complaints of the havoc being wrought by the ferocious Caribs reached Spain, and he was placed in command of a fleet to subdue these savages. Seven years elapsed before he was again free to take up his search.

At last, he set sail from the island of Porto Rico in 1521. For the third time he sailed west of the island of Bimini, which he was never to see. Arriving on the Florida coast he attempted to colonize a point from which to send forth searching parties. However, his men were driven back to their ships by attacking natives. Ponce de Leon was badly wounded. Many of his followers were killed. This disaster put an end to the enterprise. Ponce de Leon died from his wounds before reaching Porto Rico.

It may be that the Fountain of Youth was not altogether a myth. There is to be found, in the regions of the Florida Straits, a natural rejuvenating food element. Our present day knowledge of this material, together with some of the earliest writings on this area, suggest a possiblity that this was the goal which Ponce de Leon sought.

Conchs and Their Effects

DeVry, who wrote extensively upon the earliest period of the Spanish conquest of the New World, repeatedly draws attention to this foodstuff (conchs), whose importance in the scheme of Caribbean life inspired cer-

tain religious significance. It was a shellfish having a remarkable food value. DeVry again and again speaks of its meat having an important place in the dietary needs of the aborigines. Several of the crude woodcuts of this period obviously show this organism to be intimately a part of the tribal ceremonies of a religious character.

Exploration of the early mounds that were used as burial plots reveal the skeletal remains of these vanished people. They had a bony structure superior in strength to any other skeletal remains found in North America. This is particularly true of the bones of the head, lower jaw and long bones of the body. Furthermore, the remains taken from mounds pre-dating contact with the first Spanish invaders are almost completely free from any evidence of bone diseases. There have not been a large number of burial remains found which antedate Spanish association. There are, however, a sufficient number to establish unusual measurements of the cranium. The jawbones are of massive proportions, though there is no suspicion of acromegaly. And the measurements through the parietal bones in the skull are considerably greater than other similar measurements recorded on North American specimens.

It was my good fortune to come in contact with isolated colonies of the present-day inhabitants of this region, repeatedly. The most superficial observation would impress one with the unusually vigorous, healthy aspect of these people. There is another point of interest, strikingly presented among the colored natives dwelling on these isolated islands. One is immediately impressed by their well-formed and equally well-preserved teeth; and although there isn't a toothbrush among them, it is an exception to find an individual whose teeth are not pearly white. These people impress one with their strength and apparent vigor. Even to an advanced age these characteristics are, in general, the rule.

Natives may be encountered a hundred miles or more from the nearst possible source of foodstuffs and, living as they do on these limestone islands, it is extremely rare that any attempt is made to grow food. Observation and inquiry will soon convince the visitor that this shellfish, commonly known as the conch, is literally their staff of life. Not long ago, there was an interesting corroboration of this fact in one of the most popular current publications. In an article describing a bootlegger's life, as it is now lived in the Bahamas, the author stated that this shellfish is the main item of food. He distinctly gave the impression that it was practically the only food served him during the two or three days of his stay on one of these smaller islands.

Inspired by what I had already learned concerning this marine gastropod, I began a series of tests to determine what elements were responsible for the high esteem in which it was and is held.

A chick feeding experiment was instituted. A number of day-old chickens were segregated in three compartments. All groups were fed an orthodox ration, supplemented as follows: To the ration of Group 1, were added bits of fresh conch meat; to the ration of Group 2, were added ground bits of sun-dried conch; Group 3 was kept as a control.

This experiment was carried on for a period of four months. The chicks in Group 1 attained an average weight 25 percent over those in Group 2, and twice that of those in Group 3. The feathers and skeletal development of Group 1 were outstanding features.

The subsequent history of these chickens would seem to have a certain significance. While there might have been a chance that some other factor was responsible, the strain developed from Group 1 showed a definite superiority some years following this experiment, and became the nucleus of a chicken ranch which is still in existence.

The meat of this shellfish, when subjected to the ordinary heat of cooking or allowed to be exposed to air and sunlight over long periods, loses much of its effectiveness. As in the case of any other organic material taken from the sea, the natural ferments of the meat, together with a richly microscopic life, soon cause putrefactive dissolution.

The obvious problem has been to endeavor to develop a technic of preservation which would eliminate this. A few hours of direct sunlight were found sufficient to sterilize the surface of the meat and seal it against further invasion. The dehydrated envelope which ensued as a result of the sunlight was also, for the time being, protection against further oxidation of the inside portion of the meat. This sun-dried material was ground into a fine powder, completely dehydrated and sterilized. The result is a product which, tests indicate, is chemically closely similar to the raw meat when first taken from the shell.

Clinical experiment with this highly organized matter suggests a great ease of assimilation of many of the elements necessary to life and health, which are frequently problems of deficiency diseases. It appears that the relation of its calcium and phosphorous content is particularly well adjusted. The phosphatides content is unusually high and represents an outstanding lipoid, which seems to offer much promise.

36 W. 39th St.

Diet in Rectal Disease

By Charles J. Drueck, M.D., Chicago

NUTRITIONAL therapy is an old problem, but the results of dietary influence upon disease have shown so little uniformity that clear deductions are difficult.

The diet enthusiast is sometimes inclined to attribute to dietetic measures an importance which, in the light of experimental evidence, appears to be greatly exaggerated. The criticism that our American diet is too high in its ratio of some foods and too low in vitamins and bulk is a stock argument. However, it is one thing to admit, as we must, that the average American diet is not properly balanced, and quite another to present convincing proof that the direct causes of many recognized diseases are traceable thereto. In a study of this type it is difficult to control the part played by other therapeutic measures, which may influence the final outcome.

Few outside of the medical profession know anything about the food they consume or the amount needed to keep them in good bodily health. A proper diet, if followed in time, has been generally thought to be capable of preventing, or at least delaying, the progress of certain degenerative changes, although at this moment an individual's best chances for longevity come from having had the foresight to choose long-lived parents. An individual's longevity is, however, directly influenced by several factors, and among the more important of these may be mentioned inheritance, environment, occupation and nutrition.

Man has succeeded in his struggle for existence because of his development of agents of defense, external and internal. Of all the factors concerned in the maintenance of health and the longevity of man, nutrition undoubtedly is the most important, as it concerns all individuals and is essential to our daily existence. It has been definitely determined that an inadequate diet, deficient in quantity or quality, may not prove permanently deleterious over short periods; whereas, if this period be prolonged, serious results will follow, either by lowering the resistance of the defensive agents in their struggle against the invasion of infectious organisms, or by predisposing to the deterioration of the tissues and their functions, thus resulting in local organic degeneration, early senility or premature death. Unfortunately, this progressive degeneration is insidious, and frequently the damage is irreparably done before symptoms are manifested. The importance of adequate nutrition, therefore, in the process of growth, tissue repair, and in the maintenance of health, must be stressed if a prolonged and healthy existence is to be realized.

We obtain our food from the animal and the vegetable kingdoms and also from the inorganic world. Vegetables are able to synthesize or build up complex substances, such as proteins, fats, starches, sugars and vitamins from water and mineral elements in the soil and air, with the aid of heat and light from the sun, but animals require these complex foods already formed before they can be utilized as food.

There are six food elements which we require in order to keep up satisfactory growth and to maintain health. These elements are: (1) Proteins, either from plants or animals, which are broken up for tissue repair; (2) fats or hydrocarbons, which supply heat and are stored in the tissues to give beauty of form and to be used to produce heat, as later required; (3) sugars, starches and cellulose, which we call carbohydrates, to give energy; (4) certain inorganic salts, such as potassium and calcium, to give strength to the bones, and phosphorus, used largely in the neural and other tissues; (5) water and oxygen, to carry the other food elements to the various tissues and as a means of eliminating the poisonous waste products; and (6) at least five vitamins, which have been designated A, B, C, D and E. Other ferments are elaborated by bacteria, yeast cells, etc. during their growth and bring about chemical changes in foods.

Of these various substances we daily require, for a man doing manual labor and weighing 150 pounds (70 kilograms), 100 grams, or three and a third ounces of protein; the same weight of fat; and four times as much carbohydrates. We require one gram (one-quarter of a teaspoonful) of mineral salts and 1,500 to 2,000 cubic centimeters (three to four pints) of fluids, which include water, tea, coffee, milk and soup. In order to make foods available for assimilation, they must be digested first.

Stomach and intestinal digestion are not germane to our discussion, except to say that bacteria, fermentative and putrefactive, play important rôles in the processes of digestion in the intestinal canal. Fermentative bacteria act upon the carbohydrate elements and putrefactive bacteria upon the protein elements. These may serve as aids in the final stages of the intestinal digestion of carbohydrates and proteins by further converting them into simpler products of a beneficial character; or they may break them up into gaseous and fermentative or putrefactive products deleterious in character, which are absorbed into the blood, and eventually eliminated by the organs of excretion.

In the large intestine further absorption takes place. As far as is known, the large

intestine contains no enzymes, but its chief function apparently is to complete the absorption of the assimilable elements. The indigestible residue is periodically expelled from the rectum.

Proteins

The proteins most simply constituted contain the elements carbon, hydrogen, oxygen and nitrogen, which are more or less constant in quantity. The variation is mainly in the groups of chemical structure attached to the amino-acid molecules. Some proteins are more valuable than others for nutritive purposes. Their value depends on the combinations and character of their amino-acids.

There is no unanimity of opinion concerning the ideal protein ration, either in health or in disease; likewise there is much dispute concerning the various types of protein—whether animal or vegetable protein is more suitable in certain types of disease. A high-protein ration, in many instances, can be carried very well; perhaps 120 grams (four ounces) is advisable. A liberal amount must be allowed in the diet or the patient will draw from his body resources any additional amount needed. Protein-rich meats are: brains, liver, kidney, lamb and beef. Protein-rich fish are mackerel, salmon, perch, cod and haddock. Protein-rich vegetables are: peas, lentils and whole wheat. Besides these, eggs, cheese and milk are rich in proteins.

The patient may be allowed to eat red meat, which he certainly needs for the endocrine content and the effect upon the suprarenal glands. To counteract the acid-forming effect due to meat, one should add lima beans, red beets or other similar dishes, or salads, to each meat ration. These vegetables are several times as alkaline as the meat is acid, hence they neutralize the acid without impairing the nutritive value of the meat.

Remember that

1.—Broiled meats are very choice. Nothing fried is allowed except crisp bacon.

2.—Meat is to be eaten once a day only, and then in moderate amounts. Also it must be tender. If the meat is tender it may be taken rare, otherwise it must be thoroughly boiled to soften the tough parts. Meat is made more digestible by chopping, grinding or scraping. Smoked meats and sausage are not allowed.

3.—Fish is especially good, because it is tender.

4.—Pork, duck and goose are not allowed; but chicken, turkey or guinea-hen make a pleasing change.

5.—Eggs may be used in any form except fried.

6.—Shellfish are usually not advisable, although sometimes well tolerated. Oysters, if eaten, must be thoroughly chewed.

Carbohydrates

Starches and sugars, after being converted, probably through the influence of insulin, into glucose (dextrose) and levulose, are stored in the tissues and gradually liberated into the blood as required, to be oxidized into carbon dioxide and water, thus furnishing heat and energy. If starches and sugars are taken and assimilated in excessive amounts, they are synthesized into neutral fats and stored as such. In cases of sickness and starvation, where the source of food supply is depleted, the stored glycogen is first utilized, and subsequently the stored fat, and then the muscular tissues. A certain amount of stored fat, therefore, may be considered as a safeguard in case of injury or the onset of an acute infectious disease, which interferes with the processes of nutrition, but an excessive amount of it in the tissues is very undesirable. Carbohydrates are found in bread, potatoes, rice and oatmeal.

Remember that

1.—Zwiebak and thoroughly toasted bread are excellent, as are also freshly toasted crackers and one-day-old whole wheat bread.

2.—Avoid fresh bread, biscuits, muffins, pancakes or waffles. Cakes, pies, pastries and other rich sugar foods and candy are to be taken guardedly, if there is flatulence.

3.—Hot cereals are allowed, such as whole wheat, oatmeal, farina, rice or tapioca, well cooked in a double boiler.

4.—Cold cereals, prepared breakfast foods or bran are not allowed. Eskimos, in their cold climates, thrive on the low sugar intake of not more than thirty grams daily, without exhibiting an unusual tendency to arteriosclerosis or kidney disease.

Fats

The neutral fats, in a state of solution in the circulation, combine with oxygen to form carbon dioxide and water, which are excreted by the lungs, kidneys and skin. When taken in excess of metabolic requirements and not completely burned up, they may be stored as neutral fats in all tissues, mainly in the subcutaneous connective tissues.

Fat in the rations is a troublesome problem. Many patients have an aversion to fat meats and the capacity for digesting and absorbing meat fats seems to be impaired. Meat fat, in some cases, seems to give rise to gastrointestinal disturbances and diarrhea. In many instances a liberal allowance of butter will solve the problem. Butter spread generously on bread or mixed with potatoes will supply the necessary fat ration in an appetizing form. Some patients can take up to five or six ounces of butter a day with profit and without any gastrointestinal or other disturbances.

Other important sources of fat are nicely marbled meat, in which the fat is not too

noticeable, also bacon; such fish as salmon, shad and sardines; cream, cream cheese and milk are also valuable fat-rich foods. The regulation of fats goes beyond the ordinary diet, for no minor change in diet-fat will affect metabolism. Dubois relates that he has made sudden changes of 200 Gm. in the fat intake, without finding any evidence of change in metabolism. It is well known that the human body can hold in reserve large amounts of fat and draw on them at will.

Minerals

Inorganic salts are necessary constituents of the human organism. Complete deprivation of them means the death of the individual within a month. The chemical elements entering into the composition of tissues, in addition to carbon, hydrogen, nitrogen and oxygen, are calcium, potassium, sodium, magnesium, phosphorus, sulphur, iron, chlorine and iodine. Traces of silicon and fluorine are also present in the bones and teeth.

Each element serves its particular purpose, and in soluble form they serve as electrolytes for nerve impulses. Calcium is necessary in the formation of bones; also magnesium and phosphorus. Without the presence of calcium, milk will not curdle nor blood clot, and it is necessary in the digestion of fats and in regulating the muscular action of the heart. When foods are deficient in this element, lime salts stored in bones and teeth are drawn upon for vital requirements, thus softening the structures and decreasing their resistance to bacterial invasion, hence decay. Potassium and phosphorus are important constituents of muscle; potassium of all tissues; and iron of the hemoglobin of the blood. Sodium in combination with phosphates, carbonates, bicarbonates, etc., preserves the alkalinity of the blood. Sulphur is an important constituent of most proteins. Chlorine is necessary, in the formation of hydrochloric acid in the stomach, for protein digestion. Iodine is a constituent of the thyroid gland necessary to the formation of its hormone. Cereal foods and tubers are lacking in sodium, phosphorus, calcium and chlorine, and have to be supplemented in an adequate diet. This statement also applies to meat, except that it is rich in phosphorus. Inorganic salts are abundantly supplied in leafy green vegetables, in most fruits, and in milk. Milk, however, is deficient in iron.

An adequate supply of minerals is essential in all wasting diseases. Phosphorus is supplied by such foods as lentils, dried peas, navy beans and bread; sodium is found in such foods as rice, lentils and spinach; potassium in chestnuts, baked potatoes and carrots; iron in liver, beef, oysters, spinach, yeast, white potatoes, navy beans and dried peas; sulphur in cabbage, carrots and cauliflower. It is thus seen that a generous ration of fruits and vegetables, especially the green vegetables, will insure an adequate supply of minerals.

Remember that

1.—Because of the disturbance in the terminal bowel, all vegetables which are eaten cooked, must be *thoroughly* cooked.

2.—Some may be prepared as purees of beans, lima beans, peas, parsnips, carrots or tomatoes.

3.—Broth of any kind—beef, mutton, chicken—and meat juices are easily assimilated foods.

4.—Thick soups, such as cream of celery, may be taken only if they form the major part of the meal. A particular meal may consist chiefly of this thick soup, toast or crackers.

5.—The grassy vegetables, such as lettuce, cucumbers, asparagus, rhubarb, endive, marrow, sorrel, sauerkraut, beet greens, dandelion greens, Swiss chard, cabbage, mushrooms, raw tomatoes, Brussels sprouts, water cress, kale, okra, cauliflower and egg plant, leave more residue.

6.—Baked potato is better eaten with the skin.

7.—Raw carrots, radishes, celery, leeks and onions, if well tolerated, increase the mineral and vitamin supply and are very appetizing.

8.—Avoid baked beans, olives and pickles.

9.—Fruits and berries, raw or cooked, and fruit juices are all allowed, but avoid fruits with tough skins and many seeds, such as dates, figs, grapes and raisins.

Beverages

1.—Water, uncharged, should be taken freely (fully two quarts daily), but no carbonated waters are allowed.

2.—Milk, cream, buttermilk and acidophilus buttermilk, and cocoa are all desirable, if they are tolerated, but this must be determined by the individual experience.

3.—Cider, grape juice, orange juice, tomato juice and lemonade are especially good.

4.—Tea and coffee are each limited to one cup per day, and that to be weak.

5.—Alcoholics are forbidden.

The above outline is intended to lessen the work of the intestinal tract, the vegetables being selected for their easy digestibility and a minimum of rough residue left in the colon.

Of the various foods mentioned we must omit those which the patient knows, by past experience, disagree with him.

Fats and oils in common use are butter, cream, olive oil, cream cheese and fat of meat. Fats and oils of all kinds are desirable in anemic patients or those who have recently suffered from septic processes, especially if these foods are well tolerated. If,

however, there is a tendency to obesity they are best avoided.

If our patient is underweight, has a poor appetite or much flatulence, it may be better to take four to six small meals or a lunch between meals and at bed time, rather than three large meals.

Avoid all condiments, spices and pickles.

Digestive Harmonies and Inharmonies

Many fads of digestive therapy are accompanied with bewildering instructions relative to calories, vitamins and the proper balancing of the food ingredients, which are always cumbersome and sometimes unintelligible. Much of this can be simplified with a little rule of thumb table. In laying out the following table we have used in the horizontal columns four, and in the vertical columns ten articles of food, because most of the digestive inharmonies arise from combinations which include one or more of these.

	Milk	Fish and Shell Fish	Cereals and Bread	Acid Fruits	Fats	Eggs and Meat	Vegetables	Sweet Fruits	Nuts	Salads
Milk and Dessert	0	5	1	5	4	3	3	2	4	4
Fish and Shell Fish	5	0	3	2	3	4	1	3	3	2
Cereals and Bread	1	3	0	4	2	2	2	3	1	3
Acid Fruits	5	2	4	0	2	2	3	4	1	2

Key to Table: 1.—Very good; 2.—Good; 3.—Fair; 4.—Harmful; 5.—Very bad.

1132 E. 49th St.

MEN AND WOMEN

A man who has discussed the matter with his wife informs me that one difference between men and women is revealed by their actions in the washrooms of Pullman cars.

A man, he says, cleans the wash bowl when he finishes his morning toilet so that it will present an attractive appearance to the next user.

A woman, on the other hand, cleans the bowl before she uses it herself, and is disposed to let a stranger clean up after her.

Women, this man asserts, are gravely concerned about the welfare of themselves and their immediate family, but have a rather remote interest in the welfare of strangers, whereas a man feels a much broader sense of responsibility and takes in more territory in the abstract sense.—Little Journ. for Pediatrists.

A SICK NATION

The disease which carried off Greece, Rome and Russia was not perceptible to the people until it was pratically incurable. The agencies which brought this condition about did not start with open revolution, but by weakening the morale of the people and their economic stability—the latter, especially, by increasing taxes. . . . The Christian civilization established in America can survive only as long as the Republic of the United States can survive.—Committee on American Education.

PHYSICAL THERAPY AND RADIOLOGY

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The Pathologic Appendix

ROENTGEN-RAY study of the cecal region, following a barium meal, is one of the most valuable aids in the diagnosis of a clinically pathologic appendix. The term "pathologic appendix" is used advisedly, as our pathologist friends insist that there is no such thing as "chronic appendicitis."

The shape and size of the filled appendix, contour, evidence of fecaliths and constricted areas are all of some value, but are of more importance to the surgeon than in making a diagnosis of a clinically pathologic appendix. The shadow of the appendix may be much distorted, though there be no signs or symptoms of appendicitis. The time of emptying must also be considered, but none of these signs alone is sufficient to make a definite statement that a pathologic appendix is present.

Absence of filling, with some delay in the emptying of the cecum and tenderness on pressure, is really more valuable as a definite sign than are the shape and size of the appendix alone.

There is just one finding on which a definite interpretation of a clinically pathologic appendix can be made, and that is tenderness on deep, one-finger palpation over the visualized appendix.

This examination can be made only by a qualified observer and, if left to the judgment of a physician unskilled in this technic, or to a technician or a layman operating a commercial laboratory, the results may be very serious for the patient, or at least cause considerable embarrassment to the individual making the interpretation.

Physical evidence should support the x-ray findings in every case.

W. H. G.

QUALITY AND SUCCESS

Quality is never an accident. It is the result of high intention, sincere effort, intelligent direction and skillful execution. It represents the wise choice of many alternatives, the cumulative experience of many masters of craftsmanship, and it also marks the quest of an ideal after necessity has been satisfied and usefulness is achieved.

Success is just like quality. It, too, is the result of high intention, sincere effort, intelligent thought, tireless ambition, skillful execution and the choice of many alternatives.

And just as certainly as these factors never fail to produce quality, just so certainly will they achieve success.—The Dairy Sales Builder, Aug, 1933.

The Galvanometer as a Diagnostic Instrument

By Joseph E. G. Waddington, M.D., Detroit, Mich.

BETWEEN 1780 and 1790 (authorities differ as to the exact date), the electrical experiments of Galvani, an Italian physician, initiated our modern, scientific concept and utilization of the galvanic or constant current. In 1802 Romagnesi, an Italian physicist of Trente, discovered that a current of electricity affects a magnetized needle and causes it to turn from its usual position.[1] However, he apparently attached no particular importance to this physical phenomenon and it was thus relegated to oblivion until, in 1819, Oersted, the Danish physicist, attracted public attention to a similar discovery. In 1820, Schweigger, a German physicist, constructed the first galvanometer. Ampère, a French physicist, in 1882, was the first to demonstrate that two parallel conductors carrying currents travelling in the same direction attract each other, while if travelling in opposite directions they repel each other.[2] This led to his invention of the astatic needle, the forerunner of the modern mirror galvanometer, with which the name of Lord Kelvin is so intimately associated. Finally, although a long, distinguished procession of scientists from many countries has contributed cumulative thought and effort, it is to d'Arsonval that the scientific world is indebted for having made it possible to achieve a galvanometer of suitable delicacy and precisional control for recording the minute currents of electrical activity associated with the human body.

The galvanometer, variously modified as an ammeter or ampere meter, or dynamometer, whether of direct or of indirect type, as used respectively for recording the current passing through a direct or constant current type or a high-frequency or alternating type apparatus, is familiar and indispensable to all who work with electrical devices, as an instrument for precisional measurement. However, the galvanometer is not only utilizable for detecting or measuring the amount of current employed by means of commercial and electrotherapeutic apparatus, but also to register or demonstrate the quality and quantity of certain electrical human body currents. The work of Baines and Bowman[3] inaugurated a new method of diagnosis, which is as fundamentally sound and practical as is the galvanometer, upon whose delicately perceptive and incontrovertible response it is dependent. According to Tousey, "Every vital process in plants and animals and almost every other phenomenon in nature or art are productive of a demonstrable current."[4]

The living cell is composed of protoplasmic colloid (not a conductor of electricity) and crystalloids, which are conductors of electricity. "Both are absolutely necessary to the performance of the vital functions in a cell, the one giving the stabilizing condition necessary for the permanence of the structure and the other the means by which communication can be maintained with the other parts of the collective organism, the introduction of nourishment, and the removal of waste."[3-p. 24.]

Although it is well known that the body possesses quite an appreciable conductive and electrostatic capacity, it is not equally realized that it also has inductive capacity. The skin acts as an insulator of the body, but not of very high resistance; neither is its resistance any more uniform than is the generation of the body- or neuro-electricity in all individuals, or in the same individual at all times, or in all parts of the individual at the same or at different times.

Within the body itself, each cell and each organ or particularized tissue has its own insulation or (similarly to a semi-permeable membrane) semi-permeable insulation. This permits a more or less free change and interchange or charge of positive and negative electricity as respectively demanded by the ever-changing exigencies of anabolism and catabolism. The nerve cells and fibers, which telegraphically and incessantly convey their myriad and incessant demands here, there and everywhere, are liable to a breakdown of insulation and to short circuiting.

Any inhibition of normal chemism—injury, inflammation or deprivation—sustained by any part or parts of the body, will necessarily disturb the neuro-chemical balance and disturb normal and healthy activity. "Chemical energy has become an expression for the conditions regulating ionic interchange under electronic charge, and positive and negative charges are estimated as we used to estimate atomic factors in any chemical equation."[5-p. 49.] Healthful and unhealthful action and reaction is vitally dependent upon the respective physiologic and pathologic conditions of cellular insulation; a breakdown or weakening in the resistance of the various tissues and the communicating system of neuro-electric conductors will result in escape of current from the part or parts affected into contiguous tissue, with a consequent weakening, impairment or perversion of function in the affected area.

"The discovery of a submarine-cable engineer, Mr. Arthur E. Baines, that the personal electromotive force given off from his own body to the air of the testing-room was sufficient to vitiate his experiments with a sensitive galvanometer, was the starting point of over twenty years' patient investigation of the electromotive force in plant and ani-

mal physiology.[5-p.60] In man, nerve force is constantly generated and normal potential is maintained by . . . constant dissipation of charge to the air. The average E.M.F., at its normal maximum, is about five millivolts, and the current, as measured in the hand-to-hand circuit, about 0.1 microampere; the skin resistance varies in different parts of the body, but is in the neighborhood of 7,000 ohms. That insulating processes, such as the sheaths of medullated and the lipoid content of non-medullated nerves, exist there can be no question."[5-p. 140]

Baines and Robertson conducted their experimentation and investigation by examining the body, in health and in disease, by contacting, preferably but not necessarily, the forehead with one terminal of a delicate mirror galvanometer, and going over the body with a small electrode attached to the other terminal. When the testing or exploring electrode was contacted over an inflamed or pathologic area, a more extensive deflection would be reflected upon the mirror galvanometer scale than when contacting a corresponding but healthy area on the other side. The reliability and delicacy of these galvanometric deductions, in determining the vital reaction or electrical potential of the body and of precisely localizing certain unhealthy conditions, has been scientifically proved, not only by these English observers, but more recently and explicitly in this country.

Practical Application

More than a decade ago, F. C. Ellis, an electrical engineer of Chicago, initiated an intricate and lengthy investigation as to the possibility of determining different disease conditions by means of electrical currents of selective frequency. The apparent impossibility of obtaining instruments delicate enough to accurately record frequencies or wave lengths of such infinitesimal magnitude as would appear to be requisite for such work, eventually led him to revise and amplify the experimental work of Baines and Bowman. Starting thus afresh and discarding the, as yet, intangibility of differentiable wave lengths for differing diseases, he turned his attention to the practical consideration of the long recognized fact that a sensitive galvanometer will deflect when its terminals are brought in contact with the human body. Substituting a delicate d'Arsonval galvanometer for the reluctantly responsive astatic type, and introducing many technical and radical changes therein, enabled Ellis finally to develop the galvanometer as a *standardized* diagnostic instrument for practical application in the physician's office.

Contacting the body with two electrodes, both of the same metal, such as silver, can allow only indefinite measurements to be made of the electrical potential differences which naturally exist in the organism. The radical change in technic, by Ellis, in employing dissimilar electrodes, one of zinc and one of copper, thereby causes the human body to function intensively as an electric cell, setting up therein internal electric stresses which make up the electrical potential of the cell, impossible with the former arrangement employing both electrodes of one metal. It thus permits of definite, maximum measurement of the real intensity of pathologic and of physiologic (electrolytic) activity within and throughout the body itself.

Apparently, disease is a disturbance of electrical (electro-chemical) equilibrium and should, therefore, be susceptible of visual and mechanical recognition, by means of this type of galvanometer, in appreciable unit terms of degree and comparison. General and local, physiologic and pathologic, acute and chronic conditions and reactions are electro-chemically conducted within the body, to be thus registered upon a sensitively reflecting galvanometer scale.

The Ellis type of galvanometer is mounted in portable cabinet form. Extending outward from across the top of the front panel is a curved horizontal scale, equally divided into two major divisions reading from 1 to 150 and given a standardized unit value. By means of a four-point switch, cutting out a certain uniform resistance, the scale will then more sensitively read in multiples of thousandths, hundredths, or tenths, as required for indicating more delicate measurements. When in operation, a small beam of light is reflected onto the center of the scale, this beam being bisected by a perpendicular dark line or shadow.

Attaching the person to be tested to the two galvanometer terminals, the band of light, with its central shadow indicator, moves along the scale more or less quickly and expansively, according to the variability or strength of electrical energy thus conducted from the body. For testing the general constitutional reaction or vitality of the subject, connections are made to the feet and the hands. It has been found that healthy young individuals, free from many sequelae of debilitating disease, will register uniformly around a certain experimentally determined point or unit of 50,000. Advancing years, old age, chronic disease or disability sequelae, will usually reflect a diminished vitality or electrical reading. Acute disease and toxic, infectious conditions are more apt to register considerably above the normal point.

By connecting one cord terminal of the galvanometer to an electrode over the forehead—as being more convenient and centrally located—and with the other attached to a small rod electrode, more or less rapid and extensive deflections will occur when this exploring or testing electrode is contacted over local pathologic areas. Although

the fact that pulmonary lesions, tonsillitis, abscessed and decayed teeth, inflamed joints and other definitely or indefinitely apparent, superficial or deep-seated lesions, visually reveal themselves as more or less extensive and rapid deflections upon a galvanometer scale is interesting, it might be pertinently objected that this is not essential to their recognition, and also, that such an expensive and delicate instrument indicates only that a pathologic lesion does exist, but of what precise or definite nosology must be elucidated by more precise and adjuvant measures. Nevertheless, the rapidity and extent of galvanometric deflection is a helpful indicator of the acuity, severity or otherwise of the lesion involved. Further, certain conditions will electrically reveal themselves to a delicate galvanometer that, otherwise, might and would escape the usual examination.

While testing a graduate nurse, apparently in perfect health, with no history or symptoms of disease, the general constitutional or vitality index test showed a reading considerably above normal. Under the testing electrode a small area over the right maxillary sinus, just above a bicuspid tooth, registered marked deflection. Although the lady was extremely skeptical as to any disease in or around the teeth, which had recently been pronounced perfect by a dentist, an x-ray picture subsequently disclosed an abcessed tooth, which had to be extracted.

A young man who had been losing strength during the past six months, for no apparent reason that careful examination by two physicians could disclose, galvanometrically showed some pathologic reaction in one lung, which a roentgenologist subsequently pronounced tuberculous.

The galvanometer is simply an aid to diagnosis and, like the clinical thermometer, is capable of registering normal, abnormally high and abnormally low. Similarly to the thermometer, the galvanometer may give a normal reading, and yet the person examined may be far from physiologically normal. Certain chronic conditions and sequelae will not register, because they are either pathologically inactive or so feebly active as to be unable to register. The general or vitality index test is extremely informative, as affording a definite, mathematical unit of comparison with the known normal, which may be checked and rechecked to determine the result of treatment, rest or neglect. As drug action is practically synonymous with electrical activity; and electrotherapy, phototherapy and other forms of therapy induce electro-chemical phenomena within the body, it is only to be expected that galvanometric readings before and after any therapy should differ, or remain stationary, according to whether the respective treatments have been correctly indicated or not. The galvanometer should, consequently, prove valuably prognostic, therapeutically as well as physiologically.

The fact that a moist or perspiring skin will react more sensitively than a dry one should not lead to the erroneous conclusion that galvanometer readings are nothing but an index of sweating ability. If, while the subject is still attached through hands and feet to the Ellis galvanometer, the ankles are shortcircuited or connected together with a copper wire, and the wrists similarly connected, and the two wires are then attached to the terminals of a supplementary galvanometer, it will be found that the current diverted through this latter is negligible.

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NOTES AND ABSTRACTS

Diathermy, Short Diathermy and Ultra-Diathermy*

WHILE ultra-short waves have certain characteristics which belong to diathermy as a whole, they also have certain specific features quite different from those possessed, for instance, by infrared rays, such as their specific effect on certain tissues, cell respiration and cell metabolism. Ultra-short-wave diathermy produces prolonged dilatation of capillaries, which may last for 24 hours after one application. Ordinary diathermy produces dilatation also, but not to the same extent. The tissue destruction produced by ultra-short rays is quite different from the action of surgical diathermy employing long waves.

Cases of angina pectoris and myocarditis are often very much improved by long-wave therapy, while short and ultra-short waves have no beneficial effects.

Wave lengths of from 15 to 30 meters are probably the most suitable for producing

*Brit. J. Phys. Med., Dec., 1933.

electrical fever. This effect cannot be produced by ordinary diathermy.

Classical diathermy will not be superseded by ultra-diathermy. Each will have its own sphere of use, in which one cannot be satisfactorily replaced by the other. The introduction of short and ultra-short diathermy denotes a widening of the whole scope of diathermy and covers a field of indications in which classical diathermy has been of no value.

FRANZ NAGELSCHMIDT, M.D.

London, Eng.

The X-Ray and Diathermy Treatment of Prostatitis and Hypertrophied Prostate*

SURGICAL interference is called for in almost all cases of senile prostate where there is much residual urine, definite enlargement into the bladder, cystitis or evidence of back pressure affecting the kidneys. But where these conditions are not present, x-ray therapy and diathermy are to be employed.

The x-rays are used in fractional doses through several ports of entry and at frequent intervals, instead of the massive dose.

In the case of the small, hard prostate, diathermy alone gives satisfactory results. An electric current of extremely rapid alternations (a million oscillations each second) does not stimulate excitable tissues or produce chemical changes.

X-rays and diathermy are also indicated in early cases of hypertrophied prostate in which the heart, lungs, general condition or age of the patient contraindicates surgery, and when the patient will not submit to surgical interference.

S. D. WHITTEN, M. D.

Greenville, Texas.

*Texas S. J. Med., Nov., 1933.

Artificial Sunlight Treatment in Minor Ailments†

OF a series of 43 children suffering from malnutrition and debility, treated at Bermondsey Solarium during 1931, 35 showed an average gain in weight of more than 3 pounds, freedom from minor symptoms, increased vitality and general improvement in nutrition and color. Gain in weight is not of so much importance as is commonly claimed. Increased vitality is the first response of the weakly child. In my opinion the chemical action of cod-liver oil cannot replace the mechanical stimulating influence and general physical effect of exposure of the nude body to ultraviolet rays and mild air currents.

Minor ailments of the respiratory tract, the circulatory system, the digestive and excretory systems and the nervous system improve under ultraviolet ray treatment.

The local and general effects of artificial sunlight can be measured only in terms of vitality. Locally we see the healing processes and the increased vitality of the tissues. The general invigoration of the body, as demonstrated by the change in aspect and attitude of the patient, must be more than a mere psychologic trick. To me it seems conclusive evidence of regeneration of all the systems.

ENEAS J. MACINTYRE, M. D.

Bermondsey, London, Eng.

†British J. Phys. Med., June, 1933.

CLINICAL MEDICINE AND SURGERY is better than ever now, with you in complete command, and I personally couldn't do without it. —M.G.S., M.D., Illinois.

Conservatism in Nasal Surgery as Applied to the Nasal Mucosa*

IN cases of simple hypertrophied turbinates, where there are no extensive pathologic changes, surgery is often an abuse and leads to greater detriment and discomfort to the patient than the original complaint. I prefer to treat such patients by shrinking the turbinate with applications of the high-frequency current.

The surface of the turbinate is anesthetized with cocaine. One nostril is treated at a sitting. Suitable electrodes have been devised. I use one having an area of 90 square mm., which is applied with slight pressure for 4 seconds, with an actual surface application of from 300 to 450 milliamperes of current. The entire electrode must be in contact with the surface at each application, otherwise the action will be intensified and coagulation result. Treatments may be given at 2 to 3 weeks' intervals.

The after-treatment consists of the application of an ice pack or cold pack, followed by a suitable ointment.

W. A. GROSS, M. D.

Chicago, Ill.

*Eye, Ear, Nose & Throat Monthly, Nov., 1932.

Look for FACTS AND COMMENTS among the advertising pages at the back.

A LIVING FOR THE DOCTOR

(The BUSINESS of Medicine)

A Job for Organized Medicine

I HAVE been a member of my County and State Medical Societies for twenty-eight years, and have paid my dues promptly, but at no time have I seen any indication that these Societies were doing anything to protect the financial, business or legal interests of their members.

In Florida we are at the mercy of the Relief Administrators (mostly laymen), because the representatives of the State Medical Society met with them and spinelessly agreed to the ridiculously low fee schedule which they presented, to the serious detriment of the members of the Society.

The members of the legal profession have not been bunked, under the guise of "patriotism" or "emergency," into rendering legal services for the Relief Dictators at reduced rates. Their fees, mileages, per diems, court costs, etc., are being paid in full, without any crocodile tears. The grocers and others who furnish supplies to the families on the relief lists are also being paid in full.

In my County, they are planning to build a sanatorium for the care of indigent tuberculous patients; and representatives of the County Medical Society met with the Board of County Commissioners and volunteered to give free medical service in this institution.

This is a sample of what Organized Medicine is doing for (or to) its members!

I, personally, notified the Commissioners that the County Society could not speak for me in matters like this, and that if my services were required, they must be paid for in full, at regular rates, regardless of any so-called "emergency." Nor do I render services at reduced rates, nor on any other basis other than cash, to any dead-beats, strangers, unworthy persons on the Relief, or institutions. The Authorities, however, always seem able to find some weak-kneed doctor who will hold the bag for them.

The chiropractors, osteopaths, naturopaths, chiropodists, optometrists and the like, all have compact, aggressive organizations, which neglect no chance to aid and protect the financial well being of their members. They do not rush in with offers of free services at the expense of their members. They are not a spineless group, afraid to stand up for their rights, for fear that the people will desert them if they do not scatter free services far and wide.

For years I attended Medical Society meetings and tried to get the members interested in economic questions—credit associations, fee-bills (rigidly adhered to), agreements relative to free services, etc.; but most of the members were so afraid of offending someone that nothing was done.

If some of the money now being spent by the Relief Boards for wholly unnecessary (except for political purposes) clerks, investigators, administrators, aides, and other hangers-on, who now number about one to every four people on the Relief, were given to the physicians who are doing the real and necessary work, there might be a gleam of a sense and justice in the whole thing.

Since individual men are practically asked (and sometimes forced) to surrender their individual initiative into the hands of Organized Medicine, it seems to me that here is a real job for that intangible entity to undertake. If they or it will not do so, the men who run it ought to be replaced by some who will.

PERCY F. LISK, M.D.

Fort McCoy, Fla.

[Since Organized Medicine is made up of individual physicians, it seems fairly obvious that the first thing to do is to stimulate the men, like Dr. Lisk, who are not blinded nor stampeded by deliberately planned mass propaganda, but who retain the courage of their convictions, to undertake a campaign of *personal* education among the wabbly or hysterical doctors in their locality—*not* in the Society meetings, where crowd psychology and fear get in their work.

In this issue is a reprint of a letter, entitled, "They, It or Us?" signed by the doubtless fictitious name of "G. Routch, M.D.," which bears so directly and pertinently upon this subject that it is well worth reading.

If any of our readers are members of societies which are really doing anything definite and concrete to help them with their pressing economic problems, we would like to hear from them, with details of what is

being done and how; or, at least, to receive the names and addresses of the officials who are directing these helpful activities, so that we can ask them to tell our readers about it.

The "irregulars" pay dues to their societies, far higher than those paid by the regular physicians—and *they get the worth of their money.*

Perhaps, if we could be sure that Organized Medicine is under the direction of men in whose integrity, soundness and sincerity of purpose its members had utter confidence, physicians might be willing to give them more money to spend.

Perhaps the Allied Professional Societies, described by Dr. Zeitlin in our September issue (p. 433) are the answer.

We will be happy to receive and publish pertinent and reasonable suggestions.—ED.]

The Doctor On the Witness Stand*

IF necessity arises, the physician owes it to his patients to help them on the witness stand, in court, the same as he would at the bedside or in the consulting room. But in order to give any of these services effectively, he must *know his subject.* This is especially true when he acts as a court witness, because the opposing counsel will try to catch him napping.

Some time before going into court, the doctor should look up *all* the medical points pertaining to the case in hand and have them at the tip of his tongue. He should also consult with his patient's lawyer and familiarize himself with the points of law involved in the case.

When on the stand, if he will keep the following points in mind he will not find himself in trouble or embarrassment.

1.—He should relate completely every single *objective* finding determined by examination.

2.—He should reiterate every complaint *(subjective symptoms)* that his patient suffered throughout the entire course of observation and treatment.

3.—He may give an opinion as to the permanency *(in percentage)* of loss of an extremity, or of any of the five senses.

4.—He may give an opinion as to the permanency of the injuries as a whole, and their effect on the patient's earning power.

5.—He may give an opinion as to whether or not the condition will tend to become progressively worse, improve, or remain the same.

6.—He may give an opinion as to whether or not the condition as found was traumatic in origin.

7.—Should there be no dispute as to the party suing having been injured in the manner alleged, then, when counsel propounds his hypothetical question, the physician may give his opinion by stating directly that there was, or there was not, *a direct causal connection* between the accident described and the condition of ill-being found on examination.

8.—If, however, there *is* a dispute as to whether the party suing was injured in the manner charged, then the doctor must answer the hypothetical question by stating that *there might or could be a direct causal connection,* and so on. In other words, where there is such a conflict in evidence, it is not competent for the doctor to invade the province of the jury and answer, "There is a direct connection."

9.—If counsel asks you a hypothetical question, be certain that in answering it you do not take into consideration anything you know about the case *outside* of the question. You must confine your answer *solely* to the facts submitted to you.

If you do not do this, your whole previous answer may be thrown out and stricken from the record. (It is a rather common thing for the opposing lawyer to try to trick the testifying physician into an admission that he took into consideration facts *outside* of the hypothetical question when he answered it.)

10.—Never volunteer statements while you are on the witness stand.

11.—Stick to facts, bring them out clearly, and explain them to the judge and jury in layman's language as much as possible. Keep in mind always that the jury wants to understand what you are talking about, and that it is not able to grasp technical terms. If you fail to extend this consideration to the jury, most of your evidence may be wholly unintelligible to them. Therefore, in spite of the fact that the plaintiff may be deserving of a substantial verdict, the case may go against him.

12.—When introducing x-ray pictures, be governed by the law of your own state. Determine ahead of time, from counsel, the necessary qualifications for admission of x-ray pictures in evidence. As a commonsense safeguard against any effort of the opposing counsel to prevent their admission when they are brought into court, you should see to it that the roentgenograms are properly labeled and marked. Besides anticipating a move on the part of the opposition to invalidate them as evidence, you also put yourself in the best possible position to cover all the medical phases of the case.

13.—In order to have the results of laboratory tests put in evidence, it must not be forgotten that it is necessary for the person who took the specimens (blood, urine, etc.), as well as for the technician who made the

Med. Economics, Aug., 1934.

test, to appear in court to testify regarding their respective parts in the procedure. The same, of course, holds true for the x-ray technician, provided you are not able to qualify the plates yourself.

ORLANDO F. SCOTT, M. D.

Chicago, Ill.

Rules for Voters

NO. 1.—Never go to the polls unless you have previously qualified yourself to vote intelligently for the various candidates. The ballot is a privilege which every American citizen should cherish. Not to vote is a misdemeanor, but to vote ignorantly or carelessly is a major crime. If you have not prepared yourself to vote, do not go near the polls. You will do less harm.

No. 2.—Never under any circumstances vote a straight ticket. Never be guilty of putting a cross in the circle for either or any party. The man who votes a straight ticket strikes a blow at popular government and all worthy American institutions. A vote in the circle may give desirable support to a few who are honest and qualified for the offices they seek, but it is also a vote for a larger number of those who are unqualified and possibly dishonest, whose names also appear on the ballot. Any one of the latter in office can nullify the efforts of many who are honest and efficient. Vote always for men and the principles they represent.

No. 3.—Never under any circumstances vote for any candidate that you do not know to be honest and fitted for the office to which he aspires. It is not necessary that you know the candidate personally. You need not have shaken hands with him or listened to his oratory, but inquiry into his record through carefully weighed newspaper reports and other sources of information should form the basis of your opinion. You must have an opinion based on evidence. If the candidate's name is unknown to you, you should not vote for him. He may meet your requirements as to nationality, religious or lodge affiliations, but this is not sufficient to entitle him to your support. Consider that you are employing a man to conduct your business, for this is what it amounts to; perhaps to handle your money, and you must know something about him before he is entitled to your ballot. He must be honest and he must be qualified. If he has no record, either good or bad, leave his name blank.

These three principles, if followed carefully by only ten percent of the electorate, will soon bring the government back to the control of the people. They will set in operation that immutable law of natural selection, or shall we say, political selection, and the survival of the fittest, which is the fundamental principle of life, of civilization and of all progress.—Ed. from the *Aerologist*, Oct., 1932.

Medical Care for the Middle Class*

THE vast majority of people are in the middle class. These people have been accustomed to pay private physicians for good medical care. Now it is being argued that these private physicians should be replaced, either by state physicians or by corporations. It is argued, moreover, that the private practice of medicine is not able to render medical care satisfactorily for the fees available.

There are, of course, many answers to these arguments. The middle class must learn to save for sickness, as it now saves for luxuries and in anticipation of death, and thus be able to pay for modern scientific medical care; the middle class must learn that modern scientific medicine costs more than did primitive medicine, and that it is worth far more. Modern living with its many luxuries and with the fruits of invention costs more than did living a hundred years ago.

There is evidence, although all of it has not been made available by the Committee on the Costs of Medical Care, that such corporations as have been formed to render service to the middle class for profit are more costly for the type of service rendered than is the service of the general practitioner. The corporations that have been established not for profit have either laid aside large reserves, through unethical promotion, as in the case of the Public Health Institute, or have been forced to depend constantly on endowment, as in the cases of the Baker Memorial Hospital in Boston and the Cornell Clinic in New York.

*Part of an editorial in *J. A. M. A.*, Oct. 22, 1932.

HOW?

Can a man lift himself by his bootstraps? Can a man gain prosperity by spending more than he earns? Can a blacksmith shoe a horse by telling it nursery rhymes? If a man cannot do these things, how can the Government, or any division of it, do them?—COMMITTEE ON AMERICAN EDUCATION.

THE SEMINAR

(NOTE: Our readers are cordially invited to submit fully worked up problems to the Seminar and to take part in the discussion of any or all problems submitted.

Discussions should reach this office not later than the 5th of the month following the appearance of the problem.

Address all communications intended for this department to The Seminar, care CLINICAL MEDICINE AND SURGERY, Waukegan, Ill.)

Problem No. 8 (Surgical)

Presented by Dr. F. D. La Rochelle, Springfield, Mass.

(See CLIN. MED. & SURG., Aug., 1934, p. 386)

RECAPITULATION: An obese woman of forty-three years had a large solitary stone in the gall-bladder. This was removed, under Avertin anesthesia, and the gall bladder was drained (cholecystosomy). Because of the thick belly-wall, the exposure was poor, and no other pathologic condition was encountered. The drainage was scant and the wound healed in twenty days.

During the next week the patient developed pain in the right hypochondrium, with vomiting and slight fever. In ten days the fistula reopened and drained bile-stained pus, but the pain recurred daily and became severe.

Requirements: What is the nature of the complication? What to do?

Discussion by Dr. E. C. Junger, Soldier, Ia.

Problem No. 8 is an example of the outcome of ordinary gall-bladder drainage, where diseased tissue is left behind in the mucosa of the gall-bladder and cystic duct.

This patient either has a stone or a stricture in the cystic duct, which prevents the bile from draining into the duodenum. Some bile in the drainage shows that the cystic duct is not entirely occluded.

The fistulous tract leading out from the obstruction will have to be removed, by cauterising or by operation, before this patient can be relieved of her complaint.

I doubt the diagnosis of pancreatic disease, as that no doubt has been eliminated by a stool examination. Any tumor in the head of the pancreas would cause jaundice.

Discussion by Dr. John Clark, Longton, Kans.

The nature of the complication is all that I shall consider in this case. In the problem we find four cardinal signs, each of which has a place in the complication: The dilated gall-bladder; the nature of the twenty-day drainage; the stone; and the recurring fistulas after the operation wound healed. If we can answer this question, our problem is solved. We must keep in mind two questions: (1) Is the complication due to an acute condition coming on after the operation? (2) Is the complication due to a chronic state, present before the operation, and at last appearing in the manner described?

Among acute conditions, acute cholangeitis comes first. It chiefly affects young people, indigestion, colds, nephritis and infections being the usual cause. The symptoms are a bright jaundice and gastric disturbances, which end in recovery in a few weeks. The signs in elderely people are much different. They border closely upon those of cancer. For this reason a differential diagnosis cannot be made early in either condition. Surely, in this case, if this condition is present, it has been there long enough to be chronic, not acute.

Acute cholecystitis might have been ready to flare up after the stone was removed. But this will not square with the healed wound and later fistulas. It could come from cholangeitis. It is one acute condition that could produce the dilated gall-bladder and also the character of discharge, through the twenty-day time. Acute cholecystitis is possible, but not probable, in this case.

Pancreatitis was mentioned as suspected. Acute pancreatitis usually attacks males suddenly, and death comes in a few hours (two to four days). Acute pancreatitis alone hardly accounts for ten-day, recurring attacks of severe pain.

A dilated gall-bladder is always found in cancer of the bile ducts; when the cystic duct is obstructed by a stone; and in chronic cholangeitis. The manner and quality of the twenty-day discharge can go along with the dilated gall-bladder and any of the possible factors behind it. The late-recurring fistulas could go along with the cause behind the dilated gall-bladder, or stone in the common or cystic duct. The stone removed at the operation now appears less important, because the patient did not recover after it was out. She did *improve*,. and then the old trouble came back intensified. This could hardly happen if the removed stone had much to do with her early trouble.

A stone in the common or in the cystic

duct could produce suppurative cholangeitis, which is the most common and the most severe complication with stone and could account for the four cardinal signs. It also is a severe complication with cancer in the common or cystic duct. So that whatever else is here, in a chronic way, cholangeitis is almost certainly present. The signs point equally strongly to a stone in the common or cystic duct.

Chronic pancreatitis could accompany cholangeitis, by a spread of the inflammation; it could appear if the stone in the duct lodged at the ampula; or from cancer in the ducts. Of the four cardinal signs, none save the fistulas suggest pancreatitis; and the nature of the discharge excludes this condition.

Cancer is often not present when expected, and often there when not suspected; it would go with her age; it could creep along with her later history, before the operation. A stone in the cystic or common duct could cause cancer, with the evident cholangeitis. Cancer affects the bladder fundus most often; less often the cystic mouth; and least often the common duct. Since the visibility at operation was poor, it could have been missed at the fundus. In the bladder wall, the resemblance of cancer is often close to cholecystitis. The absence of jaundice and progressive cachexia are two outstanding signs against cancer.

My conclusions, based on this summary of the case, are these: The patient had a stone in either the common or cystic duct, with cholangeitis. Because two of its major signs are absent, cancer is not expected.

Solution by Dr. La Rochelle

The stomach was washed repeatedly, the duodenum drained with a Levine tube and the usual medicines given, but all were of no avail. The attacks of pain continued and were more and more severe, requiring morphine. There was leucocytosis and marked tenderness, especially during attacks, over the pancreas.

Under Avertin anaesthesia, the wound was reopened and the gall-bladder was found adherent to the abdominal wall and neighboring organs. These were all made free and the exposure was excellent. The gall-bladder contained no stones. It was freed from the liver and slit down to the neck and an attempt was made to introduce a probe into the cystic duct. This could not be done. A small clamp was then introduced as far as possible into the cystic duct and opened forcibly, thus dilating the duct. This permitted the probe to enter the cystic duct and it was then passed down the common duct until it reached the duodenum. There were no abnormalities of the common duct nor pancreas. The gall-bladder was removed and the wound closed, with a cigarette drain. In two weeks the wound was healed and there were no more attacks of pain.

Diagnosis: Stricture of cystic duct, requiring secondary cholecystectomy.

Remarks: One might well ask, "Why not do a cholecystectomy in the first place?" This could have been done, but the exposure was poor and the general condition of the patient none too good. Under such circumstances, cholecystectomy carries a higher mortality. It is always a question of judgment in a particular case what is best to do. One solution is: When in doubt, do a cholecystostomy; and it is only rarely that a subsequent cholecystectomy is necessary.

Problem No. 10 (Surgical—?)

Presented by Dr. Winfield Scott Pugh, New York City

Mrs. A. H. White, 33 years old, American, was admitted to hospital with a chief complaint of tenderness over the left loin and weakness.

Previous History: Three months before admission she had undergone a nephrotomy, with the removal of a stone of moderate size from the pelvis of the left kidney; ten days after which she left the hospital, apparently in good condition.

Present Illness: I was called at 8:00 A.M. by her family physician, who suspected that I had overlooked another kidney stone, and found the patient lying very quiet, with her skin and lips practically colorless. Her pulse was a mere trickle under the finger. She said that she was then having no pain over the kidney region, but that, an hour earlier, she had experienced violent, stabbing pain, which subsided in a few minutes, over the left lower abdominal quadrant. She had not menstruated since her kidney operation.

Examination: Physical examination of the chest revealed nothing of note, except that both breasts were somewhat sensitive to the touch. Abdominal palpation elicited a sense of resistance over the left lower quadrant, with slight pain. Vaginal examination detected a very soft cervix and a uterus that did not seem to be enlarged. In the left vaginal fornix was a mass, sensitive to pressure and of considerable size; a slight fullness was also noted on the right side. There was no discharge from the uterus. A bedside hemoglobin test showed about 45 percent. I did not waste time in attempting to elicit further signs or symptoms.

Requirement: Suggest probable diagnosis and indicated treatment.

CLINICAL NOTES and ABSTRACTS

Recent Developments in Thoracic Surgery

FOR many years the thorax, even more than the abdomen, was practically a forbidden territory for the surgeon. The inaccessibility of the thoracic contents, because of the costal case by which they are surrounded, and the supreme importance of the organs of the chest in their relation to the vital functions of respiration and circulation, seemed to set these organs apart in a class by themselves, constituting for them a sort of *noli me tangere* dictum.

The usual aggressiveness of the surgeon, however, slowly but surely broke down these surgical barriers, even as the peritoneum had yielded to the same surgical curiosity and intrepidity. Costal resection and separation of the ribs for the relief of empyema have long been established as legitimate and useful processes in surgical thoracic intervention. Pulmonary collapse, induced by acute pneumothorax, is recognized as a very proper treatment for certain forms of lung tuberculosis, in order to secure pulmonary rest and thereby favor the healing process.

Recently a Philadelphia surgeon, Dr. Simon S. Leopold, has suggested the production of pulmonary collapse, by an artificial pneumothorax induced by the injection of sterilized air into the pleural sac, in the treatment of acute lobar pneumonia. He reported the results of experiments performed upon eighteen dogs at the meeting, in Chicago, of the American College of Physicians. The object of the operation, Leopold stated, is to give the infected lung a chance to rest and fight the infection, unhampered by the labor of breathing. The treatment was continued for forty-eight hours or more—that is, until the crisis of the disease had passed. Leopold found that at the expiration of this time the pathologic process in the lungs of the affected dogs had ended.

Contraindications to this method of treatment, he noted, are bilateral involvement, the presence in the lung of extensive scar formation, and the presence of a bronchopneumonia. It is interesting to note that only three of the dogs so treated died, while thirteen of the eighteen control animals, not treated by pneumothorax, perished.

This method of treatment of acute lobar pneumonia is not new. A German physician has reported fifty such cases, in human beings treated by pneumothorax, with a mortality of only six percent. When compared with the mortality of lobar penumonia treated by the usual methods, this constitutes a distinct advance. The mortality of all forms of pneumonia, as reported in the Chicago Medical Society *Weekly Bulletin* during the past winter season, was about fifty-two percent—a truly deplorable and alarming record.

Any method of treatment which would reduce this mortality rate would be acceptable, even if the method might seem to imply certain hypothetic risks. For instance, it would seem that the pleural involvement which is generally present in penumonia, and which is the cause of the severe pain which is characteristic of that disease, might, in a certain percentage of the cases, produce dense adhesions between the costal and pulmonary pleurae of the artificially collapsed lung, a permanently collapsed organ resulting. This would be an unfortunate termination, although not necessarily a fatal one. Again, one must bear in mind the possibility of an unnecessary production of an artificial penumothorax in the case of a mistaken diagnosis, and the performance of the operation by ambitious but unskilled surgeons, with unsatisfactory or even disastrous results. Laying aside these hypothetic risks, the suggestion is an interesting one, carrying with it the possibility of a notable decrease in an appalling mortality rate.

Another interesting suggestion which has recently been made in pulmonary therapeusis, and tried clinically, is the treatment of gangrene of the lung by the use of sterilized maggots, as a substitute for pulmonary resection.

Pulmonectomy, either partial or total, is an operation of considerable gravity, difficult of performance and attended with appreciable risk of death from hemorrhage or shock. Total pulmonectomy has been performed for the cure of cancer of the lung, as well as for extensive gangrene of that organ. Recently, Dr. William F. Reinhoff, Jr., removed the entire lung from a three year old child suffering from cancer of the lung, at Johns Hopkins Hospital. The child is now well and functioning normally. This is the second such operation ever performed. In

this connection it is interesting to note that this formidable operation was first performed upon an adult by two American surgeons, Drs. Graham and Singer, of Washington University, St. Louis.

Since the revelations of the World War, the value of the maggot treatment of certain conditions, especially caries of bone and gangrene of the softer tissues, has been conceded. These grubs destroy and remove the decayed mass without encroaching upon healthy tissue, and they do this with the least possible risk of hemorrhage, nature having closed off the vessels by thrombus-formation. While there are practically no available statistics as yet, the published results of the maggot treatment for pulmonary gangrene have been most satisfactory. The method gives every promise of becoming an established therapeusis, if we may call it such, for this grave disease.

W. A. NEWMAN DORLAND, M.D., F.A.C.S.
Chicago, Ill.

Subdural Hemorrhages*

SUBDURAL hemorrhages are relatively common, 50 cases having come to autopsy in the southern medical examiner district of Suffolk County, Mass., within a period of less than four years. The common cause of so-called spontaneous subdural hemorrhage is the rupture of a bridging vein or vein on the surface of the arachnoid, usually following traumatism, which is usually minor. Death may follow rapidly if a large vein is ruptured. In most cases the blood collects slowly, and symptoms other than headache may be delayed. Temporary hemiplegia may occur. More distinctive is spastic quadriplegia. The lesion is unilateral in 84 percent of the cases.

If death occurs rapidly, the space contains fluid blood. (Stage 1.) The brain shows compression and molding of the affected side by the blood, while the other hemisphere is flattened against the skull. If the individual lives a few days before death, clotted blood (Stage 2) is found in the space. If he lives longer, up to two to three weeks, brown clot and brown bloody fluid occupy the space. In the latter period of this stage a definite membrane has formed lining the dura (Stage 3), and the clot is found adherent to it. The formation of this neomembrane from the dura is an effort to organize and remove the clot. The arachnoid takes no part in this attempt at repair.

If the individual lives several weeks there is formed, in addition to the layer of neomembrane lining the dura, an inner layer which envelops the clot and separates it from the arachnoid (Stage 4). As a result of the poor circulation to the neomembrane from the relatively avascular dura, the organization of the clot is a slow, inefficient process. Particularly is there interference with the venous drainage from the vessels of the neomembrane. As a result of passive hyperemia, the new-formed vessels are overdistended with blood, and widely dilated, sinusoid-like capillaries, known as giant capillaries, are produced. These thin-walled structures, poorly supported by the loose-textured connective tissue, tend to rupture, and secondary hemorrhages within the neomembrane result. These secondary hemorrhages may call attention to the lesion by a dramatic change in the clinical picture, and may produce death by rapidly increasing the intracranial pressure.

In certain cases, healing of the lesion occurs by fusion of the two layers of the membrane (Stage 5), but this end stage is reached only after a period of months or years. The long-continued processes tend to be associated with mental deterioration. The discovery of this stage, in individuals who have died following psychoses, suggests that subdural hemorrhage may be a means of precipitating psychoses.

The only sure method of diagnosis is by exploratory operation. The arachnoid is invaded by histiocytes carrying blood pigment, and this pigment, set free in the cerebrospinal fluid, colors the fluid yellow (xanthochromia), and is of diagnostic value when found. The only method of cure is by operation, which is as much indicated in this condition as in extradural hemorrhages.

The frequency with which this relatively common lesion is overlooked clinically, even by careful, trained observers, is manifest in the record of the cases studied.

TIMOTHY LEARY, M.D.
Boston, Mass.

*Presented at the Scientific Exhibit, A. M. A. Meeting, Cleveland, O., June, 1934.

Evaporated Milk in Infant Feeding*

NINE (9) healthy male infants were fed a mixture of equal parts of evaporated milk and 12 percent corn syrup, acidified with lactic acid. Orange juice, cod-liver oil, egg yolk, fruits and vegetables were fed in addition, at suitable ages. The infants were observed for periods of from eighteen to forty-eight weeks.

The growth in length and weight was excellent and exceeded standard rates of growth and the rate of the average male infant of Iowa.

Except in the early weeks, when clinical evidences of moderate over-feeding were present, the retentions of nitrogen, calcium and phosphorous were high and were approximately the same as those which had

*A. J. Dis. of Child., July, 1933.

been obtained when undiluted acidified fresh milk was fed to a group previously studied.

The high retention of nitrogen, high excretion of creatinine and good physical progress are considered evidences of good muscular growth.

The high retentions of calcium and phosphorous, early carpal ossification, rapid growth in body length and the absence of clinical or chemical evidence of rickets are considered evidences of good bone growth.

From the results observed, it is concluded that evaporated milk, when used with the dietary supplements given in this investigation, is a good food for infants. From the standpoint of permitting good growth and high retentions of nitrogen, calcium and phosphorous, evaporated milk compares favorably with fresh milk given with the same dietary supplements.

PHILIP C. JEANS, M.D., and
GENEVIEVE STEARNS, Ph.D.
Iowa City, Ia.

Phanodorn as a Hypnotic

CYCLOHEXENYLETHYLBARBITURIC acid (the technical name for Phanodorm, called Phanodorn in this country) was originally introduced to the medical profession in Germany, and is there used extensively in psychopathic and general hospitals and in private practice, particularly by neurologists. While abroad, it was prescribed for me for genuine insomnia, from which I had suffered for more than fifty years, sleeping but one, two or three hours or not at all, which was not seldom the case. In Norway I had a siege of ten successive nights without one minute of sleep.

Phanodorn is the only hypnotic, in my experience, which leaves no secondary undesirable effects, the patient feeling perfectly well and energetic the following day. It produces a dreamless sleep which is refreshing; whereas, without it, even when sleeping, the sleep has been accompanied by dreams, frequently of a horrid character, causing a miserable feeling upon awakening.

Parhaldehyde will do likewise, but it gives a most disagreeable odor, like garlic, to the breath, so that the patient who has taken it may be smelled at a distance of ten feet or more.

Phanodorn is put up in tablets of 3 grains (200 mgm.) each, which dose should be given at bedtime, followed by a cupful of hot tea. However, the physician must use his judgment as to the dose and how often it should be used to be effective, taking into consideration the patient's weight. It is not necessary to give a hot drink after the medicine; taking it dry into the mouth and rinsing it down with a swallow of cold water answers the purpose equally well, the patient falling into a quiet, normal sleep in from thirty minutes to one hour, according to the dose and the weight of the person. One cannot expect that a 3-grain dose will be as efficient in a patient weighing 185 pounds as with a person weighing but 125 pounds, nor with a person who has been taking other hypnotics regularly. Neither should any hypnotic be given regularly every evening, since then the doses must be increased.

It is not desirable to give a person who weighs 185 pounds or more one tablet the first time, but three should be given to induce from six to eight hours of sleep. The next evening, if used at all, 4 tablets should be given; then let two or three evenings elapse, even if the person does not sleep at all, or only an hour or two. Even six tablets will not cause more than 3 hours of quiet and dreamless sleep, if such dose be used daily. In one instance, when six tablets were taken at eight P.M., on a train, it gave but three hours of sleep; then five more tablets were taken at midnight and brought good sleep until six A.M. On awakening, slight "grogginess" was experienced for about 15 minutes and then passed off, the patient feeling well for the rest of the day.

Phanodorn slightly decreases the intake of oxygen, but from a clinical point of view this is negligible.

H. J. BOLDT, M.D., F.A.C.S.
White Plains, N. Y.

The Advertisements are NEWS! Read and use them.

Pelvic Cellulitis in the Male*

I AM seeing an increasing number of male patients suffering from pelvic cellulitis, and my observations have led me to adopt a classification as to its etiology, somewhat as follows:

1.—Infection subsequent to operation on the prostate, and particularly electro-surgical attacks on that gland.

2.—Instrumental wounding of the lower urinary passages, such as perforation of a prostatic bar by the cystoscope, or a false passage made with a sound.

3.—Peri-ureteritis and peri-cystitis, incident to disease of the bladder or ureter.

4.—Venereal diseases with peri-prostatitis and peri-vesiculitis.

5.—Abscess from other organs infecting the urinary tract by contiguity, as from a kidney, appendix, etc.

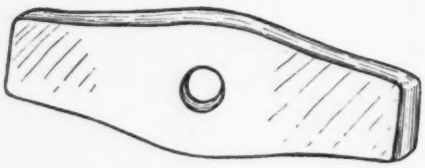
6.—Infected diverticula of the bladder or sigmoid.

7.—Infection from a distant focus.

*_Urol. & Cutan. Rev._, Sept., 1934. (The original article includes case reports and technics, including a new method of approaching the seminal vesicles by resecting the coccyx.)

I believe in very prompt and radical action; that is, thorough drainage, in all these cases. I feel that an increase in those operations where there is insufficient drainage, such as transurethral prostatectomy and internal urethrotomy, plays a considerable part as a contributing cause. The actual death rate from urethral trauma is much higher than is generally recorded.

WINFIELD S. PUGH, B.S., M.D.
New York City.



A New Appliance for Use With a Stomach Tube

THE appliance here illustrated is designed for use as a mouth gag in such cases as poisoning, insane patients and intoxication, which require evacuation of the stomach—a procedure which is difficult with the ordinary mouth gag.

The design shown is made from solid material (hard rubber or wood), shaped like a whetstone, with a hole in the center for the passage of the stomach tube. It is about 4½ inches long, 1⅜ inches wide and ⅜ inch thick, with rounded edges.

In using this appliance there is no danger of the patient biting the fingers of the attendant or the stomach tube. I have found it very practical in the various conditions mentioned. The original model was made of wood, but V. Mueller & Company, of Chicago, have produced them made of composition resembling rubber.

A. H. HAUBER, M.D.
Chicago, Ill.

Atrophic Rhinitis*

ANALYSIS of 141 cases of atrophic rhinitis shows:

1.—That in at least 78 percent the affection begins before puberty, and in at least 42 percent during the first seven years of life. These are the years during which the face, nose and its accessory cavities are normally developing most quickly. This development is consequently retarded. When the disease begins in adult life, as it rarely does, the typical facies of atrophic rhinitis does not occur.

2.—The disease begins as inflammation of the nasal mucosa and in at least half the cases, probably over 66 percent, there is sinusitis. This tends to keep the inflammation alive and is often missed. The ethmoid is more often affected than is realized. This also applies to adenoids. The present custom of dealing with adenoids early has reduced the incidence of atrophic rhinitis.

3.—Another factor is deficiency in vitamins, especially vitamin A. This deficiency impairs defense against infection and lowers endocrine function.

4.—The mucosa reacts first by hyperplasia; later, owing to fibrosis, there is glandular atrophy and change from columnar epithelium to stratified epithelium; but if the sinusitis is conquered early enough, by proper surgical and other measures, there may be considerable recovery, with disappearance of crusts and fetor.

5.—The bone of the thin lamellae of the turbinates and the ethmoid cells reacts by atrophy; that of the walls of the accessory cavities by sclerotic thickening. Similar sclerosis is found in the mastoid process of children with chronic suppuration of the middle ear. The paranasal sinuses may fail to reach their full development, with consequent facial modification.

JAMES ADAM, M.D.
Glasgow, Scotland.

J. Laryngol. & Otol. (Lond.) June 1934.

Mud Cures and Hair Growth

EVERYONE is a potential scientist. It does not need a trained scientist to make discoveries of benefit to mankind. If the layman keeps his eyes open and watches nature, he too is able to make discoveries which will be helpful to all.

A few years ago, I made an accidental discovery on my own body which, if I could have checked up with others, might have been a boon to people who are losing their hair.

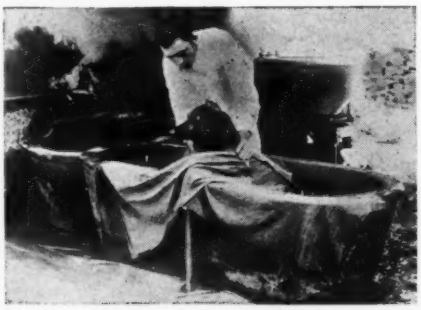
While taking "the cure" at Pistany, I noticed that my hair became dry and grey at the temples. The heat and perspiration caused the dryness. The sulphur in the mud was responsible for turning it grey, as sulphur is a bleach. Before taking the cure, my hair had been falling out.

Less than a month after completing the cure, my hair became dark, glossy, wavy and thick. This aroused my interest and I began to look into the causes.

The hair papilla cannot be replaced. When a hair falls out it is gone. When the nerve which nourishes the hair dies, the root also dies. It is erroneous to believe that thorough cleanliness is the only requisite in healthy hair growth. In spite of the protection of hats and caps, the hair is subject to the influences of the weather—the sudden changes

in temperature. Not every scalp is strong enough to resist these changes.

If the hair begins to fall out, neither massage, that in many cases only irritates the scalp, nor hair tonics, will stimulate the growth.



Dog Taking "the Cure" at Pistany.

My observations have convinced me that animals have, in many cases, been the teachers of man in matters of health. They discovered remedies which Mother Nature supplies without charge, to those who know where they are and how to use them. Animals instinctively search out nature remedies when they are in need of them.

Buffalo herds, suffering with mange, wander for weeks, sometimes months, to those waters that contain healing forces in their mud banks. These ailing animals roll in the mud until a thick crust coats the body. They repeat this process over a period of four to six weeks. They not only relieve their condition, but, as a result, obtain a new coat of hair, thicker and glossier than before.

I have observed, in New Zealand, in Yellowstone Park, and other places where hot springs and geysers are located, that sick and old animals roll in the healing mud and regain strength. The Maoris (natives of New Zealand) admit that the animals were their teachers in this way to health.

The wild dingo dog of Australia rolls in the dung of sheep and cows, but never in the dung of horses. I was always told that the odor attracted the animal to this particular dung. This, however, is not the fact. Experiments proved that the dingo rolls in dung only twice a year—when his hair is changing. This change of hair causes an itching sensation. To allay the itching, the animal scratches, causing skin abrasions and finally an eczematous condition. The dog has no doctors to prescribe for it, but seeks its own remedies.

The interior of Australia lacks water. There are almost no lakes that would offer healing mud to the dingo, and so he was forced to seek some other remedy, which he found in the dung of sheep and cows.

In the Australian bush, cattle herds are subject to skin diseases. It is remarkable that the sick dingo never rolls in the dung of sick cattle.

The dingo of New Zealand, as contrasted to his Australian brother, seeks the soothing effect of a geyser if he has any skin disease. I never saw a dingo roll in dung when healing mud was available.

My travels have given me leisure to observe wild animals and I was often surprised at the way they sought and found the remedies provided by a bountiful nature, in the form of springs, mud and plants, when their fur or feathers were afflicted with disease.

The domestic animals, or those in zoos, do not seek these natural healing forces, which explains why, with only rare exceptions, the fur or feathers of domestic animals are never so beautiful as those of wild animals.

The tremendous healing power of the mud has been proved by a 13-year-old dachshund. He was sent to Pistany to be treated there for rheumatism and, four weeks after the end of the treatment, his muzzle, which had been entirely grey, produced a new growth of coffee-brown hair.

People who take the mud and thermal cures will find, at the beginning, that their hair and scalp become dry and that the sulphur contained in the thermal water turns the hair grey. However, a month or two after the cure, the hair becomes silky, the grey parts return to their original color and all falling out of hair stops.

DR. ERVIN VALDEN.

Anesthetics in General Practice, With Special Reference to Local Analgesia*

IT is obviously impossible for every practitioner to afford the time or to have the opportunity for familiarizing himself with the action of all the modern preparations used as premedications for anesthesia or to become proficient in handling many of the instruments now used. There is, however, much that a practitioner can do. He can administer a drug that will give his patient a good night's sleep preceding an operation. **Nembutal**, given by the mouth 45 minutes before the operation, will prove, in many cases, a source of the greatest comfort to the patient. Two capsules, each containing 1.5 grain (0.1 Gm.) of Nembutal, are suggested as the dose to be given to an adult; experience will enable one to judge the type of patient to whom a larger dose may be given, such as 3 capsules, or even 4 in rare cases.

To allow the Nembutal to exercise its maxi-

*_Practitioner_, Apr., 1933.

mum effect, it is essential that the patient be left perfectly quiet after swallowing the drug. As the majority of patients are only lightly asleep under the drug, any move from their bed to the operation room is liable to awaken them and defeat the whole aim of the premedication. To overcome this, it is imperative that the induction of the anesthetic should take place while the patient is lying in bed in his room. In this way he will know nothing of the induction and will remember only that he went to sleep in his bed, and later woke up in bed to find the operation completed. In any case, even if the patient is only drowsy, the amnesia produced by Nembutal is very striking and he will, in all probability, have only a very vague recollection of what took place.

Nembutal, given by the mouth, has been suggested as the premedication of choice, on account of the ease with which it can be given, the pleasant way in which it can be taken by the patient and the small amount of alteration from the established practice in the preparation of the patient for operation.

A local infiltration or nerve blocking, combined with gas and oxygen anesthesia, with or without ether, following a premedication with Nembutal, will provide the pleasantest form of anesthetic for many operations and will spare the patient the alternative heavy dosing with ether.

C. W. Morris, M.B., B.S.

London, Eng.

Read the Ads. Ask for literature and samples. Mention "C. M. & S."

Surgical Treatment of Intractable Pain*

VISCERAL afferent painful impulses travel by way of the splanchnic nerves to the spinal cord and thence upward by relays of short neurones in the gray matter. Chordotomy, unless the lesion is deep and injures the gray matter, will not relieve visceral pain, although it will abolish intractable somatic pain.

Posterior root operations, in which a sufficiently large number of roots are severed, will abolish visceral pain. I believe it is justifiable to assume that, if all of the posterior roots to an extremity are sectioned, all sensation, cutaneous and deep, in the limb, will be lost.

The pain of angina pectoris has been abolished by posterior root section. Such an operation definitely attacks the afferent pathway for the painful impulses and does not interfere with the cardiac accelerator mechanism.

The stimulation of afferent sympathetic fibers produces changes in the periphery which in turn stimulate the ordinary somatic afferent fibers that transmit pain. The relief of pain by section of sympathetic fibers is, therefore, based on the interruption of afferent pathways.

There is no evidence of a sensory pathway through the anterior spinal roots.

Loyal Davis, M.D.

Chicago, Ill.

*J. A. M. A., Dec. 16, 1933.

Carotene and Cataract*

I HAVE used carotene with excellent results in treating three fairly advanced cases of double-sided, central (nuclear) cataract. I used the oily solution of carotene known as "Caritol," in a dose of four drops, three times daily at meal times, mixed with the food. The vision, in the first case, rose from 20/40 and 20/50, respectively, to 20/20 in each eye; in the second from 20/50 and 20/70, respectively, to 20/30 in each eye; and in the third from 20/70 to 20/30 in each eye.

In the first two cases the treatment lasted for two weeks; in the third case for four weeks and two days. No other treatment was employed except the exact correction of the refraction. After an interval of from two to four weeks in each case, without Caritol, the improvement was found to have persisted. No certain inference can be drawn from just three cases. Therefore, I am requesting other oculists to try out Caritol therapy thoroughly, in order to assist in determining its actual value.

T. H. Shastid, M.D.

Duluth, Minn.

*Am. Med., Jan., 1933.

Ideal Operation for Undescended Testicle†

IN undescended testicle the ideal operation, for me, has been the Bevan procedure with some slight modification. The ideal time is before puberty—from 6 to 12 years of age. The goal is to free the vessels and the vas so completely that they are no longer covered or surrounded with peritoneum, peritoneal bands or fascial bands, without injury.

I have found, in doing hernia operations under local anesthesia, that when the procaine solution is injected around the cord it makes the dissection of the vaginal process much easier, with far less trauma to blood vessels. I utilize this principle in my dissection around the vessels and vas in my operation for undescended testicles. After the cord has been lengthened enough to remain in the bottom of the scrotum easily,

†Am. J. Surg., May, 1933.

a 20-day, No. 2 chromic catgut ligature is passed, on a straight needle, through the gubernaculum testis and tied lightly. The two ends are then passed through the bottom of the scrotum ½ inch and tied to a rubber band and the band fastened, with a little tension, to a frame or to the skin, after the technic of Hugh Cabot.

E. DUNBAR NEWELL, M.D., F.A.C.S.
Chattanooga, Tenn.

Glimpses of Modern Psychiatry*

A HUNDRED years ago or even less, insane asylums were places where "crazy" people were locked up in cages like wild beasts. The result was that they generally behaved like that.

The modern psychiatric hospital is a place where people who are mentally (and, frequently, also physically) ill are studied and treated, and often cured, the same as any other sick folks. The object of all the studies and efforts which are now being made is to *do something* for these unfortunates—to *get them well*, or at least well enough to return to their homes, where they can be cared for by their family physicians. This means that these practitioners, if they are to do their duty, must learn enough about psychiatry to take care of them properly.

In Illinois alone there are 27,000 mentally sick persons in institutions, besides those who are able to live in the home environment. This is more beds than there are in all the general hospitals in the state, combined. In addition to their mental or psychic ailments, these people are subject to the same physical diseases as afflict any other group of the population, and must be treated for these troubles as they arise. Not infrequently (perhaps in all cases) some physical disorder is at the basis of the mental upset. These must be sought for and eradicated, as far as is possible.

At the Elgin State Hospital we have about 4,300 patients all the time. We receive about 200 new ones every month, and send home about 150. Our surgeons perform about 100 major operations a year (besides many more minor ones), and our pathologists make about 60,000 laboratory examinations a year. About 8 to 10 percent of our patients have some form of syphilis.

About 38 percent of our patients suffer from dementia precox, and a good many of these are being socially restored, so that they can safely go home, in spite of the fact that the ultimate cause of this disorder is still a mystery.

All patients are treated as individual problems and receive such medical treatment as is indicated, as well as psychotherapeutic attention and occupational and recreational therapy, of a type suited to their needs and abilities. All women who are fit to receive such attention are given "beauty shop" treatments frequently in order to maintain or develop their self-respect.

In many cases, such as those of paresis, senile dementia and menopausal disturbances, the cause of the trouble is demonstrably physical, and is treated on that basis.

One of our greatest needs is an *ideal sedative*—not a "knock out." This has not yet appeared. It must be practically non-toxic; must act promptly and retain the sedative effect for a considerable time, without making the patient unconscious; and must be suitable for easy hypodermic administration. Morphine rarely acts well; hyoscine is suitable in some cases and Nembutal in others; Dial is frequently helpful, and we now give it with more confidence since we have discovered that Coramine will neutralize its effects, if this becomes necessary.

Paresis

We have come to the conclusion that no one remedy is adequate for the treatment of all cases of paresis, and probably not for any case. We, therefore, give our paretic patients every potentially helpful remedy at our disposal, remembering that most paretics who are mentally restored die of vascular syphilis.

Our first line of attack, in 80 percent of white paretics is malarial infection. Negroes can rarely be thus inoculated, and in the other 20 percent of whites it is contraindicated for some reason. We let them have about ten chills, and then stop it, easily, with quinine. Atabrine has not worked so well for this purpose, in our hands.

The next most important means of fever therapy is sulphur in oil, injected intramuscularly. For some unknown reason, this is *sedative*, as well as pyretogenic. The third is the electric blanket. We have given up diathermy, because heat *alone* does not seem to do the work, and because *burns will occur* from this agency, no matter how much care is taken. If intravenous injections of typhoid vaccine are used to cause fever, the ordinary type should be employed, *not* that which is highly purified. This latter does not work for this purpose.

Following or alternating with the fever therapy, we give regular courses of the arsenicals—arsphenamines, tryparsamid, etc.—mercury and bismuth. We have had no untoward results from the use of tryparsamid, possibly because we watch the patient's eye grounds very carefully and discontinue treatment at the first hint of trouble.

From 50 to 60 percent of our paretic patients recover sufficiently to be sent home;

*Abstract, by G. B. L., of a talk before the Abbott Science Club, May 7, 1934.

and of these, 25 to 30 percent earn their living.

JOHN T. NERANCY, M.D.

Elgin, Ill.

[In connection with this talk, Dr. Nerancy showed several reels of moving pictures, illustrating the high spots of the handling of mental patients at Elgin, from their admission to their discharge. These we believe to be unique and to possess great educational value for the public. General showing of such pictures as this would do much to correct erroneous ideas.—ED.]

Simple Estimation of Basal Metabolism

SINCE metabolimeters are not universally available, especially in the smaller towns and rural districts, it is frequently an advantage to be able to make a rough estimate of the basal metabolism, which is sufficient for most clinical purposes. Of course, if this suggests wide variations from the usual findings in health, more accurate and detailed studies must be made.

The following formula is a combination of those suggested by other observers, and is the simplest with which I am familiar:

PULSE RATE + PULSE PRESSURE* — 111 = B.M.R.

Examples

Pulse rate, 90; pulse pressure, 30; gives
90 + 30 = 120 — 111 = plus 9 percent, B.M.R.

Pulse rate, 100; pulse pressure, 40; gives
100 + 40 = 140 — 111 = plus 29 percent, B.M.R.

Pulse rate, 80; pulse pressure 20; gives
80 + 20 = 100 — 111 = minus 11 percent, B.M.R.

When compared with metabolimeter readings, these figures rarely vary more than from 4 to 7 percent, which is close enough in most cases.

KENNETH PHILLIPS, M.D.

Miami, Fla.

Burn Treated with Dextrose
(A Case Report)

I HAVE treated a number of severe burns with a dressing of glucose (dextrose) on sterile gauze. I have many times been pleasantly surprised at the good results.

Recently I had a patient who had his left hand and wrist burned severely by gasoline, sprayed from a gasoline lamp. The gasoline ignited from the hot burner and spread quickly over the young man's hand. The whole skin area over the fingers and hand, back and front, was blistered. Some of the skin was peeled off in the effort to exterminate the fire. The hand had been rubbed in dust to put out the flame, so it was much soiled with dirt. I had fears of gas-bacillus infection. Tetanus antitoxin was given about an hour after the burn. The hand was immersed in a 1:2,000 solution of cyanide of mercury for a few minutes; then a dressing of dextrose was applied to the whole burned area and covered with a thick layer of sterile gauze. A 50-percent solution of dextrose was given to the patient, to keep the dressings thoroughly wet. I did not change the dressing for thirty-six hours.

When I removed the dressings, the dirt in the tissues all came away with them, leaving a clean, raw surface. The hand healed without infection of any kind and now, after two months, there is no disability in the hand, though a few small areas are still slightly red.

My reason for using this dressing is that sugar feeds and saves a good deal of tissue that would otherwise be lost by using oil dressings. It is simple, efficient, cheap, generally easy to get (the ordinary Karo syrup is ideal) and acts as an antiseptic dressing. To my way of thinking, tannic acid kills tissue that could be saved by the use of the dextrose solution. When the dressings are removed a clean surface is left, and no leathery masses have to be dealt with.

I believe that this treatment has sound scientific basis for its use and the results show its efficiency.

C. E. BETTS, M.D.

San Antonio, Tex.

Serologic Procedure for the Diagnosis of Syphilis

SINCE the serologic conferences at Copenhagen and Montevideo, there has been an increased interest in the relative value of serologic tests for the diagnosis of syphilis. At these conferences the test of only one serologist of the United States was presented for consideration. There are a number of excellent serologists in this country, many of whom have described original modifications of the complement-fixation and precipitation tests for syphilis. It is felt that the tests of these workers merit consideration.

The United States Public Health Service is cooperating with the American Society of Clinical Pathologists in the drafting of a plan to evaluate, independently, serologic procedure for the diagnosis of syphilis in this country. Briefly, the plan contemplates the collection of specimens of blood from at least 1,000 individuals and the distribution of com-

*Difference between the systolic and diastolic blood pressure readings.

parable specimens to the laboratories of serologists who have described an original modification of a complement-fixation or precipitation test for the diagnosis of syphilis. The donors of the specimens will be carefully selected so as to measure both the specificity and sensitivity of the serologic procedure. The sending of specimens to workers at considerable distance from the point of collection will be expedited by the use of the most modern transportation facilities, while the delivery of specimens to nearby serologists will be delayed so as to make the delivery time approximate that for those workers at the more remote points.

A committee of five members, consisting of two specialists in the field of clinical syphilology, two members of the American Society of Clinical Pathologists and one officer of the United States Public Health Service, will organize the plan of study and, after all laboratory reports have been submitted by participating serologists, will interpret the results on the basis of clinical findings. The collection of the specimens will begin about December 1, 1934, and a number of serologists will be invited to take part in the evaluation scheme.

It is possible that the name of some serologist who has described an original modification of a test for syphilis may have been inadvertently omitted. Any serologist desiring to participate will be extended an invitation upon presentation of suitable proof as to the originality of his modification of a serologic test. A brief description of the plan will also be sent to those workers who may be interested.

Correspondence should be addressed to the Surgeon General, United States Public Health Service, Washington, D. C.

HUGH S. CUMMING, M.D., F.A.C.P.
Washington, D. C.

Food and Sleep*

A STUDY of the movements of adults and children during sleep shows that eating before going to bed can improve sleep, if judgment is used in the selection of foods. Our 16 subjects slept best (with fewest movements) when a light meal of the familiar ready-to-eat cereals was taken before going to bed, and their sleep was disturbed more than normal for the subjects when a meal of "hard to digest" foods was the last meal before retiring. The sleep of children was affected by the nature of the last meal more than was the sleep of adults.

PROF. DONALD A. LAIRD.
Hamilton, N. Y.

*J. A. Dietet. Assn., July, 1934.

The Rolling-Pin Method of Reducing Fractures at the Lower End of the Radius*

IN FRACTURES near the wrist, when pressure with the thumb fails, something harder with which to push against the distal fragment is necessary. After experimenting with various sizes and shapes in wood, I found that the most serviceable thing to use is a roller about one inch in diameter and five inches long, the ends being smaller than the middle so that it can be conveniently handled (a roller of smaller diameter is best for the initial application). With this simple instrument the force can be accurately placed, easily controlled and carefully changed in position and direction.

The arm is placed over a triangular shaped wooden block, as for Colles' fracture. An assistant holds the elbow down with one hand and with the other he grasps the patient's hand and bends the wrist in hyperextension, so that distal fragment stands up almost perpendicular at a right angle to the shaft. The operator presses the small roller against the dorsal aspect of the shaft, just above the fracture, and rolls it down against the distal fragment. The first impact comes against the dorsal cortex near the proximal end of this fragment. The force at this stage must be in a distal direction, its line practically parallel with the shaft. The smaller roller enables one to apply the force as nearly as possible to the *end* of this fragment. This end is pushed distally until the overriding is corrected. At this point the assistant brings the patient's hand down, thus allowing the distal fragment to be pushed over the dorsal cortex of the proximal. The larger roller is now used to give the final force in an anterior direction, which pushes the fragment in line with the shaft. The entire maneuver may have to be repeated to make the distal fragment slip around the corner of the posterior cortex of the shaft—the keynote of success for perfect reduction. The final rolling smooths out any jog in the fragments.

Fractures of both radius and ulna from 3 to 5 cm. above the wrist, with complete posterior displacement and overriding of the distal fragment can be easily reduced by the roller method. I have not failed to reduce one of these fractures in the past three years by this method.

WILLIAM ARTHUR CLARKE, M.D.
Pasadena, Calif.

*Calif. and West. Med., Jan. 1934

DIAGNOSTIC POINTERS

Granulopenia (Agranulocytosis)

GRANULOPENIA (often called agranulocytosis) is essentially a disease of the white race and affects chiefly the better class of patients, especially members of the medical and allied professions.

The etiology of the condition has not been proved, but in some cases it seems to be associated with the use of certain drugs, such as arsphenamine, gold salts, and especially drugs of the benzamine group, of which eucaine is an example.—Drs. R. R. Kracke and F. P. Parker, in *J. Lab. & Clin. Med.*, May, 1934.

Asthma and Mortality

PEOPLE who suffer from asthma show a considerably higher general mortality rate than those not so afflicted, especially when that condition is complicated by emphysema and bronchitis. Both underweight and overweight asthmatics have excessive mortalities. These increased death rates are due, primarily, to myocardial disease and respiratory affections.—Dr. Louis I. Dublin, New York City.

Alkalosis in Kidney Disease

IN certain cases of hypertension and kidney disease, with low nitrogen retention, where acidosis would be expected, the actual condition is one of alkalosis and must be treated on that basis.—Dr. Charles T. Way, Cleveland, O.

Cardiac Pain and Digestion

THERE is one admonition in cardiac pain that should never be forgotten, and that is that people with this tendency should always rest a sufficient time after eating, as the process of digestion increases the tendency to pain. The mechanism of this is not quite clear. The explanation usually given, that it is secondary to a rise of blood-pressure, is not satisfactory. I would suggest a chemical explanation, and that is, that the saturation of the tissues, particularly the heart muscle, with the crude products of protein digestion, increases the susceptibility to pain. The amino acids are stored in the muscles as they are absorbed and taken up later by the circulation, to be metabolized into the proteins suitable to the individual need. Then the heart muscle is, for the time being, under the influence of the amino acids and may be more susceptible to pain. There are instances of people who have cardiac pain after eating certain proteins.—Drs. L. F. Bishop & L. F. Bishop, Jr., of New York, in *Internat. J. M. & S.*, Apr., 1932.

Childhood Tuberculosis

A CHILD, chronically tired without apparent cause, is one to be suspected of having a hidden focus of tuberculosis. Such a child may be underweight or fail to gain in a normal way. Lack of appetite and listlessness are common with these children. Another group shows extreme irritability and restlessness. Local sweating is a common symptom.

The most important point on treatment is to remove the child from the danger of acquiring greater infection and to keep the child in normal health.—Dr. Stephen A. Douglas, Patterson, N. J.

Operability in Exophthalmic Goiter

AN exophthalmic goiter can be considered a safe risk for operation: if the patient has been sufficiently iodinized; if the weight loss is not excessive; if there is no recent weight loss, and particularly if there has been a gain of even a few pounds; if the strength is sufficient to enable the patient to step upon a chair; if the basal metabolism rate is below plus 75 percent; if the patient has no edema nor ascites and can walk a block without becoming short of breath; if he is able to be out of bed from 3 to 4 hours daily; if he is sleeping well and eating well; if the disease has not been present for many years; if the patient is neither very old nor very young; if there are no other complicating diseases.—Dr. L. Seed, of Chicago, in *Western J. Surg. Obst. & Gynec.*, Nov., 1932.

Reenforcing the Knee Jerk

THE following method has been used to reenforce the knee jerk; over a period of several years it has proved satisfactory as a routine clinical procedure.

The patient, who is in the supine position with the knee slightly flexed, is asked to

press against the bed with the back of the heel, to contract the hamstrings. The leg thus supports itself so that the examiner can lay one hand on the quadriceps to detect the slightest contraction. The reflex relaxation of the quadriceps, resulting from the voluntary contraction of the antagonist muscle group, causes exaggeration of the knee jerk in normal persons and brings out "latent" knee jerks in a number of cases in which the classic methods of reenforcement are unavailing. This test also has the advantage of simplicity and can be carried out with sick patients in bed.—I. R. JAS. A. FAULKNER, in *Archives of Neurology and Psychiatry*, Oct., 1932.

Pyloric Stenosis

A SIMPLE physiologic test for the proof of gastric emptying is the "raisin and rice" test meal: The patient eats a regular supper and, two hours afterwards, is given a bowl of boiled rice into which 20 raw eating raisins have been mixed. The next morning at seven the stomach is emptied with a tube. The persistent presence of raisin skins, with or without rice, is proof of the stomach's inability to empty itself. Diagnostically, it is of value in that 42 percent of gastric ulcers, 58 percent of duodenal ulcers and 91 percent of gastric cancers, exhibit persistent overnight distention. In the most pronounced instances of gastroptosis, less than 3 percent of stomachs retain food overnight.—DR. F. SMITHIES, in *Edgewater Hosp. Staff News* (Chicago), July-Aug., 1932.

Weight in Dementia Precox

RECOVERY and improvement in schizophrenia (dementia precox) is definitely associated with a gain in weight. A patient who gains weight has twice as many chances of recovering and four times as many of improving as has one who does not gain.—CARL W. SAWYER, M.D., Marion, Ohio.

Pellagra

WE used to consider pellagra a disease of southern institutions, but this is no longer true; it has become fairly common in Michigan. The features are so nearly the same that the diagnosis becomes easy after a few cases have been seen. The outstanding features are the dermatitis and pigmentation, limited to the exposed surfaces. On the hands and feet this is confined to the dorsa and partakes of the glove and stocking distribution. The buccal mucosa and tongue are brilliantly red and commonly described as beefy; and if one needs further evidence one will find it in the diarrhea, mental symptoms and cord changes which go along with the advanced case.—DR. G. H. BELOTE, of Ann Arbor, Mich., in *J. Michigan S. M. S.*, June, 1932.

Endocrines in the Psychoses

IT may be said that, in all probability, the psychoses are influenced in a variety of ways by the endocrine status of the subjects. There is abundant justification for elaborate and long-continued diagnostic and therapeutic studies of the significance of endocrine factors. Successful results from endocrine medication in a variety of cases have been reported, but, in general, control studies have been inadequate or totally lacking. The importance of the psychoses among the acute medical problems of the day has been commonly underestimated. Research in psychiatry now lags far behind that in organic medicine. The number of hospitalized cases of different disorders can be taken as a rough indicator of the need for research in each. If this be granted, it must be conceded that, not until the mental and nervous disorders are receiving as much attention as all other diseases combined, will a proportionately fair allocation of effort have been achieved.—DRS. R. G. HOSKINS and F. H. SLEEPER, of Worcester, Mass., in *Am. J. M. Sc.*, August, 1932.

Sciatica

F. TURYN, of Warsaw, has described a test for inflammation of the sciatic nerve. The patient lies with hips and knees extended, and the great toe on the affected side is passively flexed and extended as completely as possible. In the presence of sciatica, pain will be felt in the gluteal part of the nerve trunk. —*Pharmacal Advance.*

Herpes Zoster and Tuberculosis of the Spine

A WOMAN, aged 46, showed signs of tuberculosis of the spine sixteen months after an attack of herpes zoster. The carious vertebrae correspond to the spinal segments involved in the zoster.

From a review of the literature, there seems to be a definite association between herpes zoster and tuberculosis, proved clinically and pathologically. In view of this relationship, it might be well, in the future, to bear these facts in mind when seeing patients with herpes zoster.—DR. T. ROSENTHAL, of New York, in *J. A. M. A.*, July 16, 1932.

NEW BOOKS

Any book reviewed in these columns will be procured for our readers if the order, addressed to CLINICAL MEDICINE AND SURGERY, Medical & Dental Arts Bldg., Waukegan, Ill., is accompanied by a check for the published price of the book.

Love of reading enables a man to exchange the weary hours which come to everyone, for hours of delight.—MONTESQUIEU.

Carlisle: Heart Disease

PRACTICAL TALKS ON HEART DISEASE. *By George L. Carlisle, M.D., Associate Professor of Clinical Medicine, Baylor University, Dallas, Texas. Springfield, Ill., and Baltimore, Md.: Charles C. Thomas. 1934. Price, $2.00.*

The author of this charmingly written (it is, in fact, a series of informal talks) and beautifully made volume, believes that the family doctor is the most important man in the medical profession, and, if well qualified, the cleverest. The book is written especially for him and shows the general practitioner, in a clear and simple way, that ninety percent of abnormal hearts are easy to diagnose and treat properly. Every point brought out can be ascertained at the bedside or in the office without the use of special instruments.

For the practitioner who believes that heart disease is difficult to diagnose and treat, this enlightening book will supply a helpful answer to a subject with which he can now deal more easily every day, to the great advantage of his cardiac patients and of his own prestige.

The six parts deal with: (1) History Taking, Examination and Interpretation; (2) Chronic Heart Disease; (3) Acute Heart Disease; (4) Irregularities; (5) Heart Pain; (6) Congenital Lesions and Neuroses.

The entire book can be read through, like a novel (and with equal or greater pleasure), in a couple of hours, and this should be done first. Then a chapter should be read every day or two, and this process repeated until the contents are practically memorized. The time so spent will prove a highly profitable investment for every clinician.

Meaker: Sterility

HUMAN STERILITY. Causation, Diagnosis, and Treatment. A Practical Manual of Clinical Procedure. *By Samuel Raynor Meaker, M.D., Professor of Gynaecology, Boston University School of Medicine; Gynaecologist, Massachusetts Memorial Hospitals; Chairman of Subcommittee on Sterility, National Committee on Maternal Health, Inc. With 27 Original Illustrations. Baltimore: The Williams & Wilkins Company. 1934. Price, $4.00*

This work presents the most up-to-date scientific information available on the very important subject of the causation, diagnosis and treatment of human sterility. It is not merely another record of research work, but a practical manual of clinical procedure for gynecologists, urologists, internists, endocrinologists, sexologists and general practitioners.

The author wisely decided that the time had not yet arrived for an exhaustive treatise. Too many details remain imperfectly understood. What he has done is to assemble, complete, the knowledge now well established, including all the latest discoveries. Consideration has been given to every recognized method of investigation and treatment, including, of course, endocrinology, with emphasis on those thoroughly tested and proved by the author and his colleagues in their clinic.

Thousands of patients are waiting eagerly for the help which this book will enable their physicians to give them, and every general clinician will find in it many helpful and practical suggestions, with full directions for the study of such cases.

Hirsch: Sex Life and Technic

THE POWER TO LOVE. *By Edwin W. Hirsch, B.S., M.D., Associate in Urology—University of Illinois. New York: A. A. Knopf. 1934. Price $4.00.*

It is a pleasure to welcome such a book as this, as it skilfully and lucidly portrays the mechanism of the sex function; its diseases and how they should be treated. Doctor Hirsch remarks the sex invalid expects the physician to find a cause for his troubles, but does not tell the real facts until they are forced out of him—and it often brings out the real artist in one to establish the facts. He pleads for a more careful study of the sex invalid; and certainly it is badly needed.

Premature ejaculation is responsible for many unhappy marriages, as the woman is not merely a passive instrument, but a real participant in sex. Today, women are insisting on their sex rights and refusing to become neurotics simply because they have an impotent partner. On the other hand, the socalled frigid woman is in need of postgraduate instruction.

The chapter on "The Art of Sexual Technique" is a masterpiece, as well as a courageous essay. It is the finest thing that has yet appeared on the subject. All but the hopeless will learn something to their advantage from it. Few, even among physicians, understand the proper attitude toward the sexual act.

After reading this chapter, the doctor will be able to show his patient real facts of life in print, that he would lack the courage to admit as his own ideas.

This book covers every phase of the sexual question, beginning with the regulatory mechanism of sex; also the causes of sexual debility, organic and psychic impotence, sex fear, sex control and climaxing, with an epochal chapter on The Power to Love.

We have here an immense amount of information on the most important subject in the world. Every physician and intelligent layman will find it an absorbing volume and one difficult to lay aside, and it should be in the hands of all such. W. S. P.

Papers of the Mayo Clinic

COLLECTED PAPERS OF THE MAYO FOUNDATION. *Edited by Mrs. Maude Mellish-Wilson and Richard M. Hewitt, B. A., M.A., M.D. Volume XXV, 1933; published May 1934. Philadelphia and London: W. B. Saunders Company. Price $11.50.*

This volume is confined largely to articles of practical interest to the general practitioner, diagnostician and general surgeon. It contains 114 papers printed in full; 21 papers in abridged form; 40 papers in abstract form; and the titles of 268 other papers. References are given to the medical journals in which the articles first appeared. The list of contributors totals 222, all members of the Mayo Clinic or on the Mayo Foundation for Medical Education and Research, Graduate School, University of Minnesota.

There are 44 papers on the alimentary tract; 30 on the genito-urinary organs; 7 on the ductless glands; 14 on the blood and circulatory organs; 4 papers on the skin and syphilis; 21 on the head, trunk and extremities; 9 on the chest; 15 on the brain, spinal cord and nerves; 8 on radiology; 4 on anesthesia and gas therapy; 5 on technic; and 14 papers on miscellaneous subjects. The first two sections of the volume are to the memory of Mrs. Maud H. Mellish-Wilson, former editor of publications of the Mayo Clinic and Mayo Foundation.

Vehrs: Spinal Anesthesia

SPINAL ANESTHESIA. Technic and Clinical Application. *By George Rudolph Vehrs, M.D. St. Louis: The C. V. Mosby Company. 1934. Price $5.50.*

The wide adoption of analgesia by larger and more important hospitals and clinics has created a demand for a volume correlating well known and proved facts on this subject. This book constitutes a survey of the experimental and clinical records in the field of spinal anesthesia for the past 49 years. The author has endeavored to give the laws of affinity of analgesic and anesthetic drugs for nerve tissue, and to picture the anatomic divisions of the nervous system, together with their physiology and reaction to nerve block. He also presents the various methods of producing analgesia and anesthesia and a technic which is popular, successful, and safe.

Fujikawa: Japanese Medicine

JAPANESE MEDICINE. *By Y. Fujikawa, M.D. Translated from the German by John Ruhräh, M.D. With a Chapter on the Recent History of Medicine in Japan by Kageyas W. Amano, M.D., D.Sc. (Med.). With 8 illustrations. New York: Paul B. Hoeber, Inc. 1934. Price, $1.50.*

Students of or dabblers in medical history, who have found delight in the pleasing, authoritative and inexpensive little volumes of the *Clio Medica* series, will have a rich treat in reading the volumes on Chinese and Japanese medicine. In fact, the former should be read first, because the medicine of China has had such a profound influence upon that of Japan, that the latter can hardly be understood without some knowledge of the former.

It is appropriate, in one sense, that the story of Japanese medicine should be written by a native of that country; but while he will understand his subject better, he may not be so well able to bring it into our consciousness as would an acclimatized Occidental. Dr. Fujikawa has, however, accomplished his task very well, taking up the medical practice according to the periods of Japanese history. Dr. Amano has added an interesting chapter dealing with the Japanese physicians and research workers, such as Shiga, Kitasato, Noguchi and others, who have made outstanding contributions to our scientific and professional knowledge.

Asgis: Dental Socioeconomics

AN OUTLINE OF DENTAL SOCIOECONOMICS. An introduction to the fundamentals of general and special economics applied to oral health service in the light of present-day sociological trends. Illustrated with 10 tables and charts. *By Alfred J. Asgis, ScB., M.A., D.D.S., Chairman Dental Socioeconomics Committee, The Allied Dental Council; Associate Editor, Clinical Medicine and Surgery, Archivium Chirurgiae Oris (Italy) and The Dental Outlook; Past Honorary President, 6th Australian Dental Congress; Member, Academy of Political and Social Science; Associate Fellow, American Medical Association; etc. Published by The Allied Dental Council, Inc., 425 Lafayette Street, New York, N. Y. April, 1934. Price, $1.00.*

This work is a compilation of the many lectures and addresses by the author before dental and medical societies. It represents the birth of a new dynamic or service theory of dental socioeconomics and marks the final liquidation of the older static or profit theories of dental economics, which have failed to meet the test of depression years and a changing social order.

The principles enunciated by the author are sound, logically expounded and apply

with equal force to the economic problems of the medical profession. In fact, no distinctions are drawn between the two and the term, "medical professions," is used in its widest sense. No one will argue with the author's convictions, that medicine and dentistry must stand or fall together and that neither profession should adopt any insurance plan without the cooperation of the other.

Socialization of the medical professions is taken for granted and not the least valuable part of the book is the one devoted to charts and illustrations which show the changed relationships between profession and public which will result with the advent of insurance or State Medicine. The present relationship between "producers" of professional services (physicians and dentists) and "consumers" of that service (the general public) is depicted as a straight line. Socialization is shown to mean the interposition of a third group, a State or insurance body, called "distributors," which converts the old straight line into a triangle. Very clearly does the author show that the future welfare of the medical professions depends upon their ability to control the "distributors" side of the triangle.

This mimeographed book can profitably be read by every physician and dentist who depends for his livelihood upon the practice of his profession and is concerned with the preservation of a decent standard of living.

L. B.

Curtis: Gynecology

A TEXTBOOK OF GYNECOLOGY. *By Arthur Hale Curtis, M.D., Professor and Head of the Department of Obstetrics and Gynecology, Northwestern University Medical School, etc. Second Edition, reset. Philadelphia and London: W. B. Saunders Company. 1934. Price, $6.00.*

In the second edition of this well known work, the author has included the newer knowledge of the various phases of the subject, as contained in the recent contributions of the gynecologists of the world, to which he has added his own personal experience. The book is, therefore, eminently practical in its nature and well suited for student use.

In stating that the employment of radium is preferred by the majority of American gynecologists to radical operation, the author is in accord with the modern views as to the treatment of cervical carcinoma. His discussion of endocrine therapy in gynecology is very complete and satisfactory.

A good surgeon probably shows his skill best by his plastic work. Curtis has developed an excellent technic in his repair of perineal lacerations, which he shows in a series of illuminating illustrations. An interesting chapter is that covering the gynecologic aspects of the early months of pregnancy; as is also that devoted to the rarer varieties of ovarian tumors, the granulosa-cell tumors, disgerminomas and arrhenoblastomas.

On the whole, the book is a safe and sound presentation of modern gynecology; and the illustrations, largely the work of Tom Jones, are typical of that artist's high class art. A comprehensive bibliography adds greatly to the value of the book.

Endotoxic Infections

THE ENDOTOXIC INFECTIONS AND THEIR CONTROL WITH EDWENIL. *Glendale, California: Spicer and Company. 1934. Paper-bound copies free on request.*

This interesting brochure of more than 100 pages gives a brief but satisfactory synopsis of the development of immunology and immunotherapy, discussing opsonins, Besredka's sensitized vaccines, toxins and antitoxins, bacteriolysis, non-specific protein, etc., and the nature and functions of the catalytic substance known as Edwenil, which is recommended in the treatment of endotoxic infections. Many clinical suggestions and case reports are given.

This book contains much sound information of permanent value and will be an addition to any medical library. As no expense is involved in obtaining it, every wise physician will do so.

Saint-Hilaire: Legends of Asia

ON EASTERN CROSSROADS: Legends and Prophecies of Asia. *By Josephine Saint-Hilaire. New York. Frederick A. Stopes Co. 1930. Price, $0.85, postpaid.*

All scriptures have their apocrypha—tales and parables from authentic texts, but not accepted by the orthodox, though full of beauty and meaning.

In this volume, the author has gathered those cryptograms of truth which are accepted and repeated from Altai to Ceylon—stories of the Buddha and the Christ; of Appolonius of Tyana; of Akbar the Great; of Lucifer; and of others—strong, simple thoughts and dreams of the peoples of the East, many of which are texts for sermons.

Those who can look behind forms and conventions and meaningless acceptances will find bits of richness here.

Watson: Sir Robert Jones

THE LIFE OF SIR ROBERT JONES. *By Frederick Watson, Author of "Civilization and the Cripple," etc. Baltimore: William Wood and Company. 1934. Price, $3.75.*

All American physicians and surgeons, and particularly all orthopedic surgeons, will find pleasure and profit in reading this excellent biography of the world's great orthopedic surgeon. There is not a dry page in the book.

Mr. Frederick Watson, as the son-in-law and associate of Sir Robert, has written, from his intimate knowledge of the man as well as the surgeon, a book which is an inspiration to every member of the medical profession, and particularly to students. The thousands of American physicians and surgeons who visited his clinic and later the hospitals which were under his supervision know how great a man Sir Robert Jones was, as do the hun-

dreds of young American surgeons who worked under and with him during the War. There are thousands of other members of the profession who have no adequate conception of him or his work. He was, to the crippled, what Lister was to surgery.

This book should be owned and read by every surgeon (especially the younger ones) and by every physician interested in the history of medicine.

Montague: Constipation and Indigestion

I KNOW JUST THE THING FOR THAT! *By J. F. Montague, M.D., Medical Director, New York Intestinal Sanitarium; American Association for the Advancement of Science; American Society for the Control of Cancer; etc. New York: The John Day Company. 1934. Price, $2.00.*

This is a clearly, sensibly and humorously written book, intended for laymen and dealing with digestion and its vagaries and abnormalities, especially constipation, its causes, results and correction by diet and other hygienic measures. The reader is repeatedly advised to see his family physician if serious symptoms arise or if the simple suggestions given do not bring prompt relief.

Among the subjects interestingly considered are: The choice of laxatives (if any); the value of lactic acid bacteria; belching; culture of the abdomen; unnecessary operations; etc.

Most general practitioners can gain a great deal of valuable information from reading this book, as well as a considerable amount of mental stimulation and amusement. They can then recommend it to their patients with chronic indigestion — if they are sufficiently altruistic to prefer grateful friends to profitable cases.

Blood Chemistry

LAMOTTE BLOOD CHEMISTRY HANDBOOK, Containing Up-to-date Information on Simplified Methods and Apparatus for Blood Chemistry as Required in the Routine Practice of Medicine. *Published by the Research Laboratories of the LaMotte Chemical Products Company, Division of Blood Chemistry Apparatus, McCormick Building, Baltimore, Md. 1934. Free on request.*

Blood chemistry is a mysterious field to most physicians, and many of them have difficulty in interpreting a report of such findings, when received from a laboratory.

This small but well-made book makes it clear that blood chemistry tests, and others of a delicate nature, can be made, in his own office, by any intelligent and careful physician, who is equipped with the proper apparatus.

The descriptions of various chemical tests and their meanings will clarify the scientific thinking of many who have not the time to spend in studying the more elaborate works, and will be an addition to any medical library.

Smith: Care In Heart Disease

THAT HEART OF YOURS. *By S. Calvin Smith, M.D., Sc.D. Illustrated. Philadelphia, London and Montreal: J. B. Lippincott Company. 1934. Price, $2.00.*

This is a book for laymen, whose purpose is to supplement and amplify the information which physicians give to a heart patient when time permits and when the patient is in a receptive mood. With the newer understanding of heart affections and with the advance of modern methods of study, the once prevalent dread, horror and hopelessness of heart impairment have given place to encouragement, confidence and optimism for every heart afflicted. Although the conquest of heart trouble has been made by modern medicine, the conquest of *troubled hearts* rests largely with the individual. The author writes in a cheerful, optimistic vein, with the authority of rich experience and with the confidence born of knowledge.

Most clinicians can read this book with profit; and all can recommend it to their heart patients and their families with confidence.

Jagic and Klima: Blood Diseases

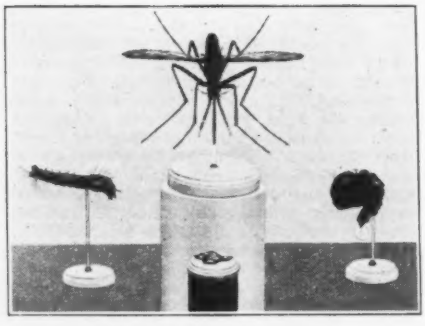
KLINIK UND THERAPIE DER BLUTKRANKHEITEN. (Clinic and Therapy of Diseases of the Blood.) *By Professor N. Jagic, M.D., Director of the II Medical University Clinic of Vienna, and R. Klima, M.D., Assistant Director. Second revised edition. With 22 Illustrations, 2 Colored and 4 Black Plates. Berlin and Vienna: Urban and Schwarzenberg. 1934. Price, paper covers, 23 marks; bound, 25 marks.*

When one considers the many difficulties encountered by general practitioners, internists and surgeons in the diagnosis of blood diseases and the interpretation of laboratory findings of the blood for diagnostic purposes in a large number of obscure affections, this last word of two eminent clinicians will be hailed as a valuable guide. It is presented in a rather colloquial style, so that one gains the impression of a bedside consultation rather than perusal of a textbook. Beginning with the examination of the individual patient with regard to the history of his case, physical findings, examination of the urine and feces, the authors present an exhaustive and detailed description of all known methods of examination of the blood. The first 100 pages are devoted to the technic and interpretation of the various blood tests.

Of particular interest is the last section of the book devoted to the interpretation of the blood findings in a large number of diseases such as septic infections, tuberculosis, typhoid fever, infectious icterus, influenza, diphtheria, pneumonia, polyarthritis, tetanus, diseases of childhood, syphilis, parrot fever and parasitic diseases. Finally an appendix is devoted to the blood picture in malignant diseases.

G. M. B.

MEDICAL NEWS



The Anopheles Mosquito

IN the exhibit of the Wellcome Research Institution, at the Century of Progress Exposition, Chicago, there are huge and accurate models, a foot and a half or two feet long, of a number of the insects concerned in the transmission of disease, so that one can really study them.

Here is a picture of the models of the *Anopheles Costalis* mosquito, one of the most important carriers of malaria in Africa, showing the eggs, the larva, the pupa and the adult insect.

Two Openings in Illinois

TWO capable physicians, who can produce results, can find locations in small towns in Illinois, where they can find all the practice they can handle.

For full particulars, write to A. P. Myers, Druggist, Martinsville, Ill.

How To Use Quinine

WITH all the new remedies now on the market, quinine still remains one of the most useful drugs in the physician's armamentarium.

Merck & Co., Inc., of Rahway, N. J., have prepared a useful little "Quinine Formulary," which gives suggestions for using this drug and other cinchona alkaloids in a variety of disease conditions. They will send a copy free, if you say so.

Important Meetings and Guests

THE Interstate Postgraduate Medical Association will hold its annual International Assembly at Philadelphia, November 5 to 9, inclusive, 1934; and the Southern Medical Association will meet at San Antonio, Texas, November 13 to 16, inclusive.

These are two of the most important and clinically valuable meetings of the year, at least one of which should be attended by every physician who can possibly do so.

Two distinguished foreign guests will take part in both of these meetings: Dr. Bernard Myers, of London, England, the famous pediatrician who heads the clinical section of the Royal Society of Medicine; and Dr. J. Forestier, of France, who, with Picard, was the first to develop the use of iodized oils in roentgenology and has written a textbook on that subject. Dr. Forestier will also be a guest of the American Congress of Radiologists.

Measles Epidemic Broke Record

OUR warning, in an editorial on p. 204 of May issue of "C.M.&S.," regarding the prevalence of measles this year, has been justified by the outcome. The number of cases reported has been higher than that in any corresponding period since the U. S. Public Health Service began to keep records of this disease, in 1912. For several months, 30,000 or more new cases were reported every week.

Clinical Assembly

THE Omaha Mid-West Clinical Society will hold its second annual assembly at the Hotel Paxton, Omaha, Nebr., October 29, 30 and 31, 1934. Clinics, lectures and addresses will be given by local clinicians and a number of well-known guests from other cities, totaling about 100 hours of intensive postgraduate instruction.

All physicians who can avail themselves of this opportunity should do so. Further information may be obtained by addressing the Society at the Hotel Paxton, Omaha.

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Both the literature listed below and the service are free. In addition to this, we will gladly furnish such other information as you may desire regarding additional equipment, or medicinal supplies. **Make use of this department.**

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Z-720 National Hay Fever Antigens. The National Drug Company.

Z-725 *The Hormone*—July, 1934. The Harrower Laboratory, Inc.

Z-737 Descriptive Booklet. Od Peacock Sultan Co.

Z-742 Dilaudid a Morphine Derivative. An Advance in Opiate Medication. Bilhuber-Knoll Corp.

Z-746 Dr. Weirick's Sanitarium. Dr. G. A. Weirick.

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